REPORT OF 9940 TSU-SGO, PHILIPPINE AMPUTATION AND PROSTHETIC UNIT

OFFICE OF THE SURGEON GENERAL
UNITED STATES ARMY

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PART I - INTRODUCTION

Mission

The 9940th Technical Service Unit of The Surgeon General's Office, the Philippine Amputation and Prosthetic Unit, was appointed by direction of the Secretary of War to establish an amputation center and artificial limb shop in the Philippine Islands.

Purpose

The purposes of the 9940 TSU-SGO were (1) to select and secure equipment and supplies necessary for the establishment of a complete amputation center; to set up this material near Manila, Philippine Islands, at a site adjacent to the Victoriana Luna General Hospital, Philippine Army; and (2) to train Philippine personnel in all phases of a program for treatment of amputees, including amputation surgery, physical medicine, limb construction and fitting, and administration. The level of performance of trainees was to be such that they could take over completely and efficiently before termination of the assignment of the American personnel.

NOTE: The following instructions contained in Par. 1, AGPO-A-O 200.4, 21 March 1946, have been carried out: "....Captain Keys will report to the theater commander (or his designated representative) as practicable during his visit, and in all cases on the completion thereof, the nature and findings resulting from his visit and the substance of any report he intends to make to the War Department or the office from which he is sent. In all reports made as a result of this temporary duty a positive statement that the foregoing instructions have been carried out will be included."

PART II
ORIGINAL REQUEST FOR AMPUTATION UNIT

From the Office of the Chief Surgeon, Headquarters of the United States Army Forces, Western Pacific Command, came the following report, dated December 11, 1945, to The Surgeon General of the U. S. Army:

"On July 26th, 1941, under the provisions of the Tydings McDuffey Act, the President of the United States called the Philippine Army into the service of the Armed Forces of the United States in the Philippines. During the various military campaigns between that date and the end of actual hostilities in 1945, some members of the Philippine Army, including their guerrillas, suffered wounds necessitating amputations of various types. During the same period members of the Philippine Scouts, an integral part of our Army, suffered similar disabilities. These wounded, from both the Philippine Army and Philippine Scouts, are authorized the same treatment as U. S. Army patients, and, as such, are entitled to a suitable prosthesis and training in its use before their discharge.

"War Department Circular No. 367, 1944 series, is quoted in part as follows: Paragraph 1. 'Patients with major amputations will be transferred to General Hospitals designated as amputation centers.' Paragraph 4. 'Purchase or fitting of artificial limbs at Government expense is not authorized other than at amputation centers.

"At present there are about 75 members of the Philippine Scouts and Philippine Army in this area who have had their primary amputations and are awaiting the procedures described in the above mentioned War Department Circular.* Those who were members of the Scouts are still patients in the American hospitals and have been for some time. Of those who were in the Philippine Army some are still patients in various Army hospitals. Others have been discharged, without receiving the benefits of Circular No. 367, and to date, 44 of these have applied to the Veteran's Bureau in Manila for prosthesis.

"No U. S. Army amputation center has been established or is contemplated in this command, which is tantamount to nothing being done on the premises, at this time. Neither is the Veteran's Bureau capable of assisting in the program. There are no facilities in the Philippine Islands for furnishing artificial limbs.

"It is therefore recommended that either (1) a complete prosthetic shop, including needed supplies and adequately trained U. S. Army personnel, be sent to the Philippine Islands at an early date or (2) that those members

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* It was found that most of these patients had been discharged from hospital care and very few records were available giving their location.

of the Philippine Army and Philippine Scouts who are entitled to prosthesis and training prior to their discharge from the service be returned to the already established amputation centers in the United States."

Further comment on the subject was called to the attention of The Surgeon General in the following statements:

"1. It is believed that a failure to recognize, and to provide the means for meeting, the responsibilities of the U. S. Government (Army) to Philippine Scout Veterans, who are former members of the U. S. Army, may subject the War Department to serious criticism. Should such criticism be made, it is likely that unfavorable attention will be called to the fact that Brazilian military personnel, not members of the U. S. Army, have, at the request of the Brazilian Government, been given care in U. S. Army hospitals where personnel and facilities for their proper treatment were unavailable in Brazil.

"2. Inasmuch as it is estimated that it will take 6 to 9 months before a complete prosthetic shop can be set up and put in operation in the Philippines, it is recommended that:

"a. Those members of the Philippine Army and Philippine Scouts who are entitled to prosthesis and training prior to their discharge from the service be returned to an already established amputation center in the United States.

"b. Arrangements be made through the U. S. Veterans' Administration for the establishment, in the Philippine Islands, of a sufficiently complete prosthetic shop, including needed supplies and adequately trained personnel, to provide maintenance and replacement service for such prostheses."

In reply to the first two letters, The Surgeon General informed the Planning Division of ASF that:

"First, the responsibility of the War Department to provide proper surgical treatment, prosthetic devices and training for amputee members of the armed forces is obvious. A moral responsibility to provide such service exists in those cases where members of the armed forces have become veterans without receiving the benefits to which they are entitled.

"Second, it is not considered feasible to fit prostheses in this country and then return personnel to the Philippines, where maintenance facilities are not available. The United States Veterans' Administration is not, at this time, in a position to establish a prosthetic shop in the Philippines.

"Third, it is recommended that a team of two officers and not more than 20 enlisted men be ordered to temporary duty in the Philippines for a period

of approximately six months to establish amputation and prosthetic services. At the end of that period services will be continued by Philippine personnel now being trained in this country. Complete supplies, as determined by this office, must accompany the team. Analyses of prosthetic devices to determine those best suited for tropical use are now under way. Funds and qualified personnel are available.

"Fourth, authority for establishment of prosthetic services in the Philippines is requested."

Thus on February 15, 1946, the following suggestions were sent to the Chief Surgeon in Manila from The Surgeon General's Office in Washington:

"Reference is made to a letter from General Martin and 1st Indorsement by General Denit, dated 11 December 1945, concerning prostheses for members of the Philippine Army and Scouts. This correspondence is being forwarded by second indorsement to the Commanding General, ASF, for authority to establish a special mission for this purpose. I am inclosing a copy of the indorsement for your advance information.

"We have held a conference with representatives of the Veterans' Administration and it appears that they do not expect to have prosthetic facilities available in the near future. It is therefore proposed that the Army establish an artificial limb shop, and two officers from amputation centers have already been assigned to this office on temporary duty to outline detailed plans. It is not considered feasible to send the amputees from the Philippines to this country since this would not provide for repairs or replacement which would be necessary after return to the Philippine Islands. In order to provide facilities of permanent value the Army intends to establish a complete prosthetic shop in order to fit all cases who are entitled to medical treatment by the Army. This shop should also be able to care for beneficiaries of the Veterans' Administration by contract arrangements. At a later date it would seem appropriate that this shop should be taken over by the Philippine Government so that it could provide complete service for the Islands.

"It is proposed that one medical officer, Captain Edward S. Brown from Bushnell General Hospital, and one administrative officer, Captain John J. Keys, CAC, from McCloskey General Hospital, with 15 enlisted men and the necessary supplies and equipment, will be sent from this office on temporary duty for a period of approximately six months. Since there are 15 enlisted men and several officers from the Philippines in this country for training at the Army Amputation Centers, they should return to Manila in time to take over the operation of this shop before the expiration of that period. I suggest that you arrange with the local authorities for the proper assignment of these men and officers when they return.

"In order to proceed immediately with this plan I suggest that you requisition, by radio, one prosthetic shop, complete, the composition to be

determined by this office. In order to provide adequate supplies it is desirable that we know the number and types of major amputees in approximately the four categories—arm, forearm, thigh and leg. If this information cannot be determined we should know as accurately as possible the total number of Army and veteran major amputees that will need fitting. Additional information on total civilian amputees will be valuable.

"The artificial limb shop will require approximately 6,000 sq. ft., plus some warehouse space. A shop should be of as permanent construction as possible in close proximity to the amputation wards. If this Center is going to be of permanent value, a central location in Manila is also suggested.

"Please furnish as much specific information as possible on the type and location of the shop and the type of electrical current available. If it would be necessary to construct a shop we will submit a plan based on the experience in the Amputation Centers."

March 1, after the Manila Command had sent to Tokyo, Japan, for the final indorsement of the plan from General MacArthur's Hq., the following report was presented to The Surgeon General from Manila Hq.:

"The plan as promulgated by your office, for an artificial limb shop in Manila, staffed by Americans, has been thoroughly studied and is believed to be a practical solution.

"The best site for this installation is the 312th General Hospital, located in the Mandaluyong Hospital center. This area is approximately 5½ miles from the center of Manila and close to our operating hospitals. The 1st GH (PA) has been allocated one half of this site, leaving the administrative, clinical and surgical sections unoccupied. We believe this would be an ideal set-up for the prosthetic shop.

"This location is advantageous for the following reasons: (1) No new construction will be necessary. The buildings indicated on the enclosure are all prefabricated Australian structures. The floor space is more than adequate and in addition suitable quarters are available for personnel of the group if desired. (2) It is immediately adjacent to the main Philippine Army Hospital where any needed secondary amputations on Philippine Army patients would be accomplished. (3) The proposed Veterans Bureau set-up will be immediately across the street, on the site of the present 249th GH. Whether the Veterans Bureau will establish their regional office or their office plus some hospital facilities has not yet been determined. (4) The 248th General Hospital, an American installation, which is on the July 1st troop list and therefore has

some degree of permanency is in the immediate vicinity. Any secondary amputations on the Philippine Scouts would be done in this hospital.

"The only known disadvantage is that the shop would not be an integral part of an operating American hospital. However, during the period of U. S. Army responsibility American personnel could easily mess with the 248th General Hospital and be quartered there also if desired. When the shop is turned over to the PA it could be ideally operated in conjunction with the 1st Philippine Army General Hospital.

"The following is an approximate list of amputees. The figures for the PA were secured from their casualty lists. Those for the Scouts represent just those in the Greater Manila Area, where most of the Scouts were CDD'D. There may be a few more in other areas.

PA & Recognized Guerillas (from casualty lists)

Arm	217	*
Hand	34	
Above the knee	165	
Below the knee	120	
	436	

Philippine Scout

Arm	6
Hand	1
Above the knee	4
Below the knee	2
Fingers or toes	4
	17

Recapitulation

Arm	223
Hand	35
Above the knee	169
Below the knee	122
Fingers or toes	4
*	553

"Attention is called to the fact that most of the amputee patients who were in the Philippine Army have already been discharged and no longer are under the control of that organization. They are scattered throughout the Philippine Islands wherever their homes were located. To a lesser extent, this is also true of the Philippine Scouts. No estimate of civilian amputees is obtainable at this time.

* We were unable to locate this many patients. Neither the Philippine Army nor the Veterans' Administration had records on more than 68 patients. Most of the patients came in after receiving radio or newspaper information that the Unit had arrived.

"The Philippine Army Personnel Section was contacted and has agreed to place any returning members of their Army who have been trained in the United States in prosthetic work on duty in the proposed artificial limb shop.

"The Medical Supply Section, this office, is requesting by wire one prosthetic shop, complete, in accordance with the information in your letter. The shop will have its own power unit already available and installed. It is the unit used by the 312 General Hospital and delivers 110 V. 60 cycle alternating current."

HISTORY OF THE 9940 TSU-SGO

The Philippine Amputation and Prostheses Unit was organized and sent out from the Office of The Surgeon General, U. S. Army, in March and April of 1946 as an answer to the request of the Chief Surgeon of AFWESPAC for aid to the Filipino amputees.

The actual physical plan of the unit, its supplies and training programs were organized at the Office of The Surgeon General by Captain Edward S. Brown, in charge of surgery, and Captain John J. Keys, in charge of the artificial limb shop.

Every attempt was made to anticipate fully all the requirements of such a unit in the way of equipment, supplies and personnel and to organize the various sections of the unit before leaving for the Philippines. Captain Keys and Captain Brown visited most of the major amputation centers in the United States to tag the personnel and supplies which would be needed. Many valuable ideas on the care and treatment of amputees were gained from these visits.

During the preliminary days of planning, the Corps of Engineers at Fort Belvoir was called upon to test the materials to be used in the manufacture of the artificial limbs and to recommend those best suited for use in the tropics. The materials subjected to test were plastic, wood fiber, wood, leather and aluminum. Aluminum limbs were recommended as the most durable and it was suggested that all leather parts used on the limbs be treated with a fungicide in addition to being made moisture-resistant by a coating of shellac or varnish. These recommendations were accepted and found to be very satisfactory under actual working conditions later in the Philippines.

Many weeks were spent in Washington locating and requisitioning supplies, and the final assembly of all supplies was undertaken at the San Francisco Medical Supply Depot.

On April 1, 1946, all personnel (four officers and 16 enlisted men) and all supplies had been assembled at San Francisco for overseas shipment. On 18 April the Unit, including the supplies, machinery and personnel necessary to establish the amputation center, left for Manila aboard the U.S.S. Cape Newenham. Supplies were packed in 1900 crates and boxes.

On arrival in Manila three weeks later Captain Keys and Captain Brown reported to the office of the Chief Surgeon, AFWESPAC, explaining their mission and requesting aid in setting up the program. The old 312 General Hospital area was assigned to the Unit and arrangements were made to install the machinery, electrical power and plumbing and to get the limb shop into working order as soon as possible. The actual installation of the machinery was done by the enlisted men of the Unit alone, since the Engineers either could not or would not assist us.

The entire artificial limb shop and physiotherapy buildings were ready for the patients within four weeks after the arrival of the Unit in Manila. The occupational therapy building was not set up until the arrival of the two civilian occupational therapists late in June.

The problems presented by the Filipino amputees were not essentially different from those of American amputees. The main difference was the high degree of enthusiasm and interest shown by the Filipino amputees. They had never expected to receive a really functional artificial limb, and had resigned themselves to using whatever makeshift limbs they could obtain. Consequently they greeted the arrival of the Unit with a great deal of feeling and showed an unusual willingness to learn to use the limb as quickly as possible in order to earn a living again. At no time during their hospitalization had these patients received any more than the bare essentials of medical care, food and clothing. Their one and only interest was to obtain their artificial limbs as soon as possible, learn to use them and get out of the hospital. We endeavored to help them as much as possible with these plans.

The most distressing problems confronting the Unit on its arrival in Manila and throughout its entire stay in the Islands were those arising from inability to obtain many essential items of supply and limb parts which had been ordered and requisitioned in Washington but which for some unknown reason were never sent out by the various agencies from which they were ordered.

The most important example of this was a complete inability to obtain AE shoulder hinges and elbow blocks, even after repeated letters and cables sent to the States through the office of the Chief Surgeon of AFWESPAC. As a result, only three above-elbow amputees received completed limbs and training in their use. The parts for these three limbs were secured by tearing down the sample limbs available. Hip control joints were not received until the last two weeks the Unit was under American control, and the plastic compounds for making the BK buckets never did arrive.

During the first six weeks the Unit was in Manila much time was spent arranging supply lines so that the drugs and other materials necessary to the surgical section and the shops could be secured and work carried on without too many interruptions. The Philippine Army Medical Service had no penicillin, no sheet wadding, and very limited supplies of the sulfa drugs and suture materials of any kind. These articles were obtained for

them through United States Army supply channels, and in some cases by purchase on the market. Surgical instruments were also very scarce and had to be obtained from many sources.

However, in spite of these problems the work of setting up the Unit was well under way within two weeks after its arrival in Manila. The surgery schedule was worked out and the first cases operated two weeks after the Unit landed. The first complete limb, an AK prosthesis, was turned out by the limb shop on 11 June, one month after arrival of the Unit.

At first the Philippine Army Medical Service was very indifferent and showed very little interest in assigning personnel to the Unit for training. This undoubtedly was due to the fact that Colonel J. Gonzales Roxas, Chief Surgeon of the Philippine Army, had not arrived from the United States and no arrangements had been made to provide the necessary Filipino technicians for training by the Unit. With the arrival of Colonel Roxas, however, this whole picture changed and we received all the interest and cooperation we could ask for. Two groups of Filipino technicians were assigned to the Unit, the first being an entirely untrained group of enlisted men and the second consisting of the Filipino technicians who had been partially trained in the United States at the various amputation centers. These men were individually interviewed and placed as apprentices to the American technicians.

The actual training program for the two sections consisted of demonstrations, lectures, films and practical experience, whether in the field of amputation surgery or in the making of artificial limbs. The two departments were under the constant supervision of Captain Keys and Captain Brown, since their work necessarily overlapped in most cases.

At the request of Colonel V. C. Hirschman, Chief Surgeon, PHIBCOM, the training program was opened to United States Army medical officers in the Philippine Base Command. Separate lectures and demonstrations were conducted for these officers at the various station and general hospitals in the Manila area.

Shortly after the arrival of the Unit in the Islands it became evident that there would be little chance of caring for all the eligible amputees of the Philippine Army, not because of their great numbers but because of the difficulties in locating the patients and transporting them to the hospital. Therefore, it was decided that we should try to locate at once as many patients as possible, get them to the hospital and use them primarily for training purposes. This was done, and at all times there were 150 to 200 patients under our care. They represented every one of the major types of amputation; thus we were able to demonstrate all the most important types of surgical procedures and the corresponding prostheses for them.

With the sudden influx of several large groups of amputees into the overburdened 1st General Hospital PA, many problems of rationing and quartering arose. The hospital patients were already on low rations and quarters and in overcrowded ward tents, and this new group of patients so depleted their food supplies and living space that the Filipino doctors and nurses voluntarily gave up their food and quarters so the patients could be cared for. The Unit therefore obtained for them several standard hospital ward buildings of frame and corrugated steel construction, in addition to 10 semi-permanent buildings which were used for quarters for the hospital personnel.

A fund-raising campaign was started by Captain Brown and Captain Keys in an effort to interest the civil population in the plight of their own disabled war veterans. The initial contributions were of course very meager, but after several volunteer women's social groups became interested in the project the idea was quickly seized upon. By October 10, 1946, the fund had reached a total of P 1,500,000 ($750,000) and was still increasing. His Excellency, President Roxas, and Mrs. Roxas promised to help the veterans and the hospital in every way possible. At the present time legislation is pending to grant the veterans additional aid in the form of pensions and land grants, using land which had been seized from Japanese landholders.

In addition to the fund-raising campaign an attempt was made to secure jobs for all the amputees at the time of their discharge from the hospital. Lectures and demonstrations were made to various groups of American and Filipino business clubs and individuals. The response was very gratifying and every amputee who has been discharged from the unit has been placed in a job which will enable him to become self-supporting.

At the time the American personnel were relieved of duty in the Unit the Filipino staff had been in complete and successful charge of the entire program with a minimum of supervision from the Americans. The Filipinos will have many problems of supply, but we feel confident that these can be worked out without too many difficulties. The Philippine Republic has indicated that the amputation program will be continued along the course already established by the American Unit. Their immediate plan is to finish caring for all disabled Army veterans and then to extend their facilities to civilian amputees, who in all probability will be asked to help defray the cost of the limbs. In this way the Philippine Government hopes to build up a fund for purchasing new stock for the limb shop.

The American Embassy in Manila has at all times been very much interested in the work of the Unit, and because of this interest we feel that the facilities of the Unit will continue to be utilized, although to a lesser degree than when the American Unit was in charge. This, of course, only time can tell.

PART III
SURGERY

All amputation surgery performed on Philippine Army patients, Philippine Scouts and recognized guerillas was done by Captain Brown or directly under his supervision. In addition to the actual amputations and revisions, many other types of surgical problems had to be dealt with among these patients because of the fact that many of them had received multiple injuries. Some of these injuries were more severe and incapacitating than the amputation itself and constituted the major complaint of the patient; therefore, in order to rehabilitate these men it was necessary to treat them as a whole.

The Philippine Army Medical Service has neither the highly trained specialists nor the supplies and funds to organize complex and efficient specialty centers such as were established by The Office of The Surgeon General, U. S. Army.

Besides the amputations, the surgical section of the unit handled a number of straight orthopedic cases, facial plastic problems and bone grafts. There were a few intra-abdominal surgical procedures which had to be completed before the patient could be discharged.

From the very first week the operating room personnel were organized into an efficient team trained in handling the amputees. In this way much valuable time was saved not only for the patients but also for the doctors

With few exceptions all lower-extremity amputations were done under spinal anesthesia, using spinal procaine 120 to 180 milligrams, depending on the size of the patient and the estimated length of the operative procedure. Ephedrine sulfate gr. 3/4 was used to help control the blood pressure drop so frequently seen with spinal anesthesia. Most of the upper-extremity surgery was done under intravenous sodium pentothal, although a few cases were given inhalation anesthesia. This was not used much because of difficulty in obtaining anesthetic gases. Some of the minor plastic procedures were done using procaine hydrochloride 1 to 2 per cent locally. There were no anesthetic complications in the series of cases operated.

Altogether, 94 reamputations, revisions and plastic procedures were done on 89 patients. Extraneous surgical procedures not directly connected with the amputations are not included in this series. There were 27 of these cases.

Of the 94 amputation procedures there were six postoperative surgical complications. There were two suture line infections from fungus growths, one postoperative pneumonia and three hematomas. All these cases recovered with satisfactory stumps and without the need of further surgery. There were no fatalities in this series.

It was found that the Filipinos, like other dark-skinned races, tended to form very pronounced keloid masses along the postoperative suture line. These keloids usually made their appearance within a few weeks after surgery and resulted in difficulty in fitting a few of these cases. As a consequence of this we became more discriminating in our choice of those cases to be revised, and we decided to leave alone a great many scars which ordinarily would have been operated. Our greatest help in deciding which scars could be revised came from observing other scars on the patient's body. Actual observation of these unrevised stump scars after the patient had received his artificial limb failed to reveal any evidence of irritation or breakdown due to pressure from the prosthesis.

The guiding surgical principles used in all types of amputation surgery were as follows:

a. All cases were free from infection for at least three months before final definitive surgery was done.

b. All infected stumps were treated by debridement and the necessary incision and drainage, sequestrectomy or foreign body removal carried out as soon as the infection developed. Sinus tracts were not allowed to become chronic with the resulting large areas of induration and edema around them which were so difficult to clear up. These infected cases were opened widely and allowed adequate drainage.

c. All cases were started on penicillin 48 hours preoperatively and continued on it for four to five days postoperatively, or until the patient's temperature had been normal for a period of 48 hours. The drug was given intramuscularly every three hours in doses of 20,000 units.

d. All cases received an extensive triple-orthopedic preparation of the stump, well above the proposed site of operation.

e. Strict attention was paid to securing hemostasis and a dry field. The pneumatic tourniquet was used wherever possible. This was released as soon as the obvious bleeders had been ligated.

f. A light plaster-of-paris cast was used on all amputations and revisions and allowed to remain in place for at least 10 days postoperatively.

g. Clean granulating terminal wounds which were slow in healing were closed with a Thiersch graft, thus shortening by many weeks the time until final revision.

h. The bare skin of the stump was handled as little as possible during the operation and was draped off from the operative field if possible.

i. Layer to layer closure was accomplished whenever possible using cotton suture material for the deeper tissues and silk for the skin.

j. The cast and sutures were removed on the tenth postoperative day and all stumps were bandaged from that time onward with elastic bandages. The patient was allowed out of bed at this time.

k. Physiotherapy was started on the fourteenth postoperative day with bed exercises, stump-tapping and preliminary instruction in stump-wrapping and care of the skin. Usually on the twenty-first postoperative

day the patient was able to attend the regularly scheduled classes with the Unit.

These rules were rather rigidly adhered to during the entire period, with the purpose in mind of setting a definite routine in the care of the patients which could easily be continued after the Filipino staff took over the functions of the Unit.

Following is a separate statistical compilation of the total numbers of patients treated and operated and the percentages of each type of amputation.

Breakdown of Patient-load Statistics

Type of Amputation	Total	Total Operated	Total Fitted Without Operation
Above elbow	53	25	28
Below elbow	29	8	21
Wrist disarticulation	3	0	3
Partial hands	3	1	2
Above knee	74	28	46
Below knee	47	24	23
Knee disarticulation	9	2	7
Gritti-Stokes	2	2	0
Partial feet	1	0	1
GRAND TOTALS	225	94	131

Percentages of Types of Amputations

Above elbow	23 %
Below elbow	12.87
Wrist disarticulation	1.33
Partial hands	1.33
Above knee	32.85
Below knee	20.87
Knee disarticulation	3.99
Gritti-Stokes	00.88
Partial feet	00.44
TOTAL	100 %

Complications of Surgery

1 Postoperative pneumonia.....recovered
3 Hematomas.....recovered
2 Suture line infections, fungus.....recovered

Fig. 1. Typical short above-elbow stump.

Fig. 2. Mid-forearm stump two weeks postoperatively.

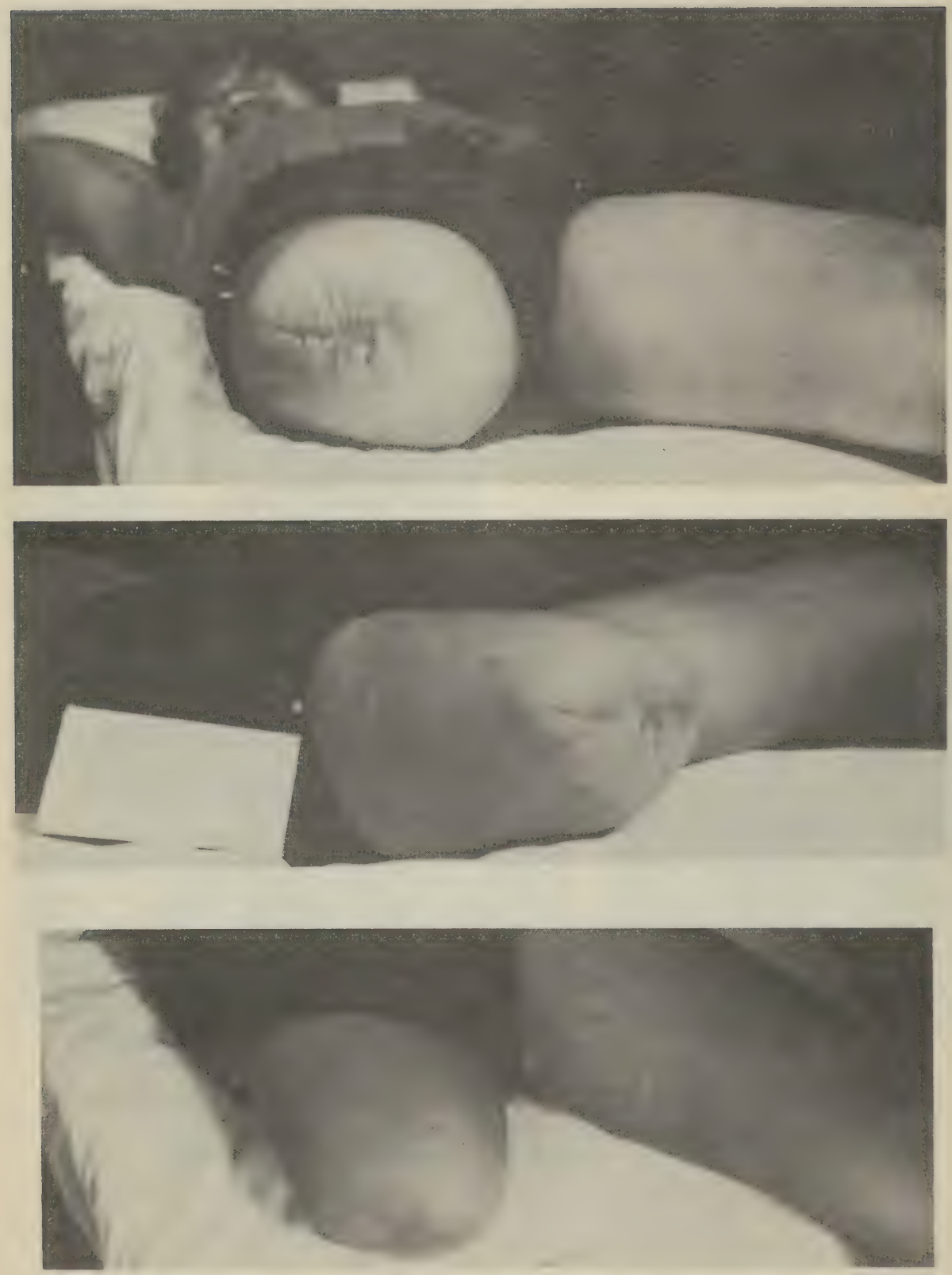
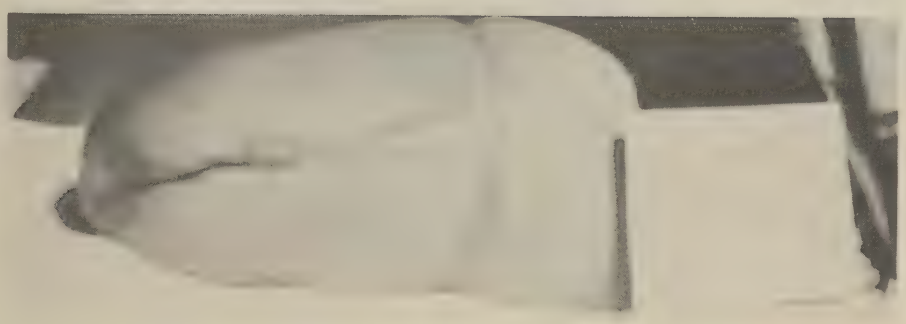


Fig. 3. Illustrating marked keloid formation one month postoperatively.

Fig.4. Illustrating short above-knee stump with multiple furrowed scars.



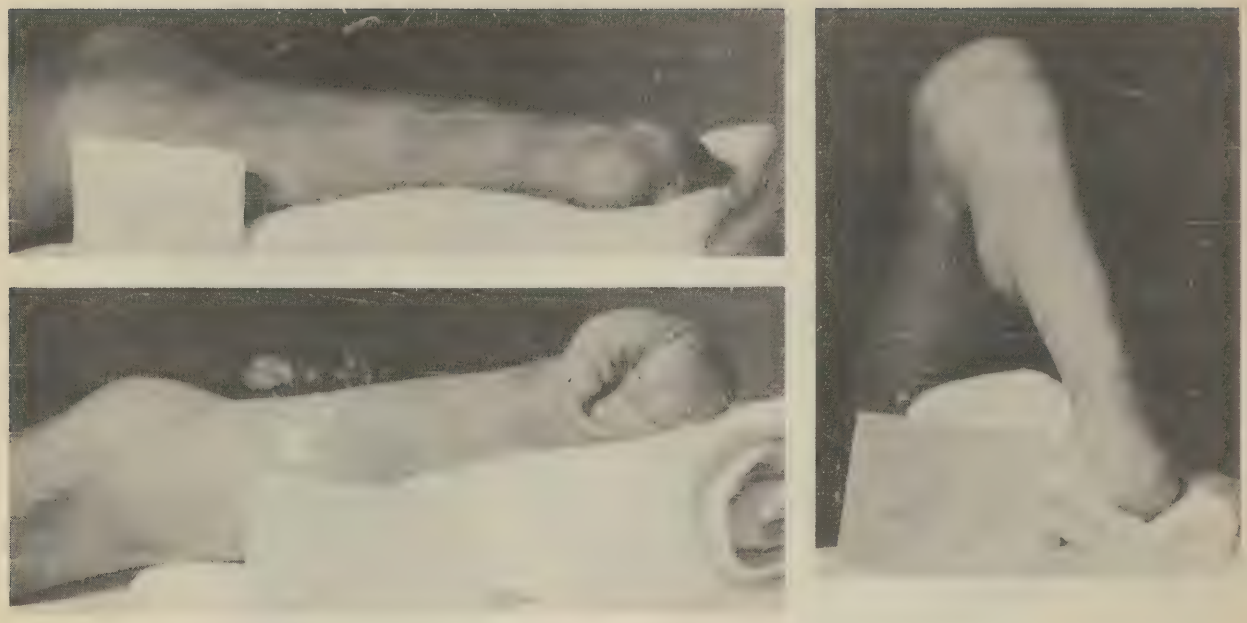


Fig. 5. Ankle disarticulation. Patient refused further surgery. See limb section for prosthesis.

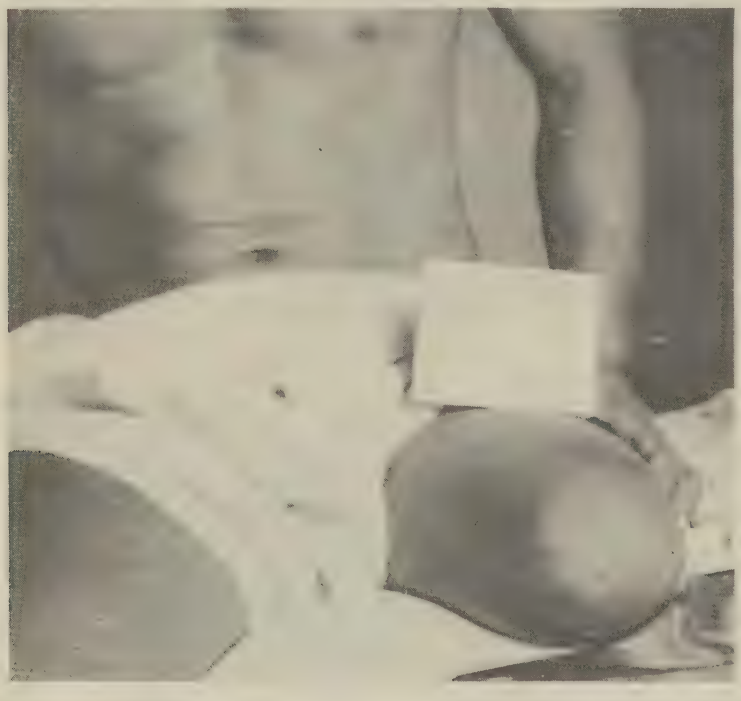


Fig. 6. Postoperative Gritti-Stokes. Good callus formation at six weeks. Fitted seven weeks post-operatively.

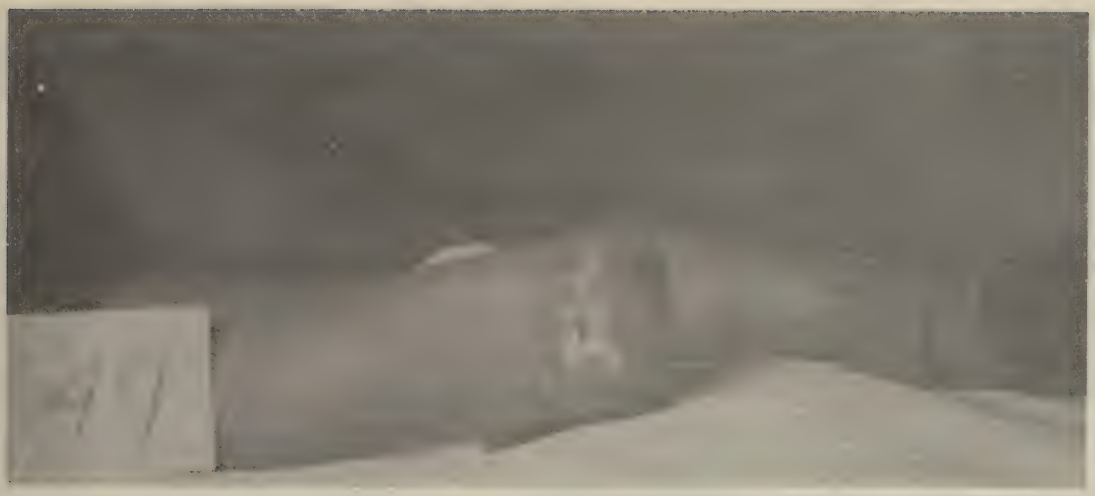
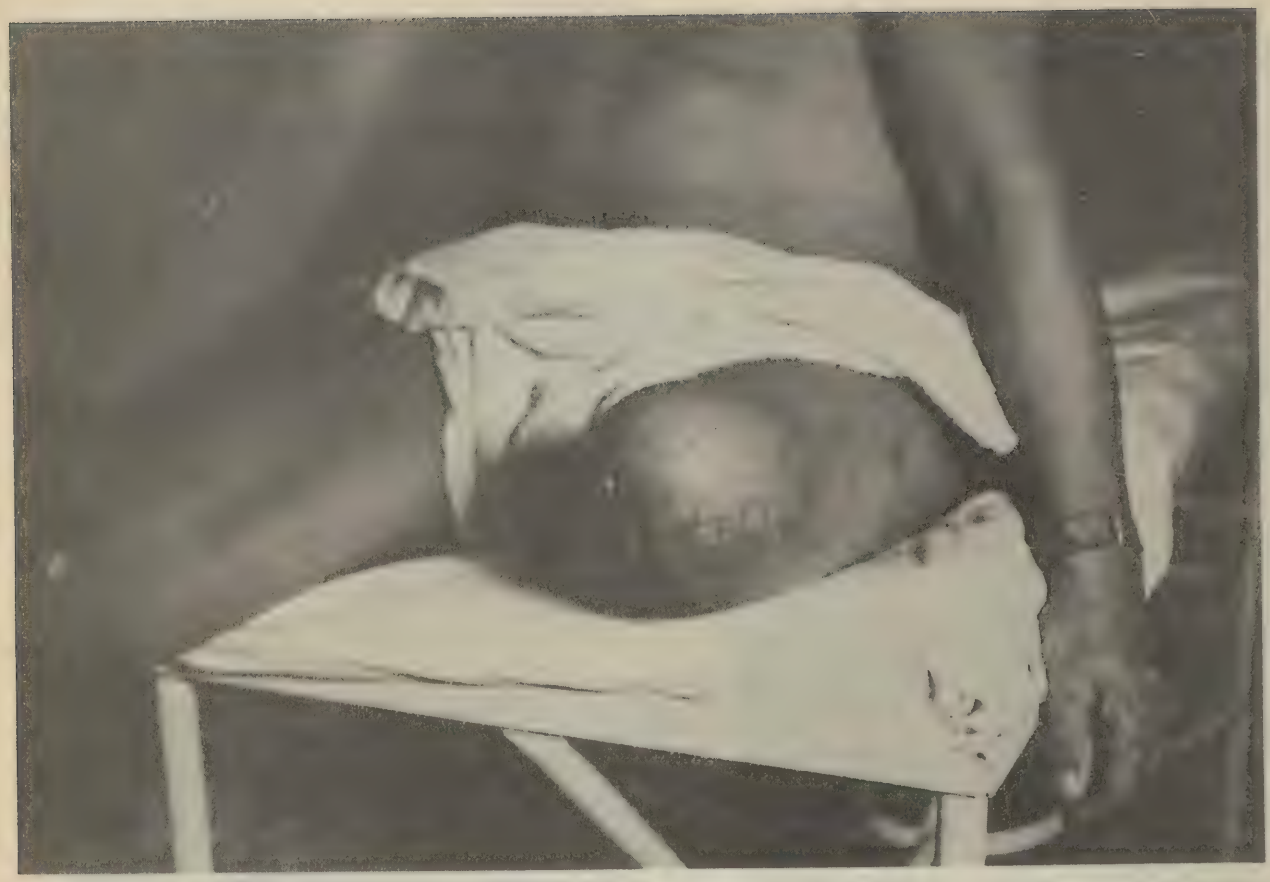


Fig. 7. Knee disarticulation seen postoperatively.



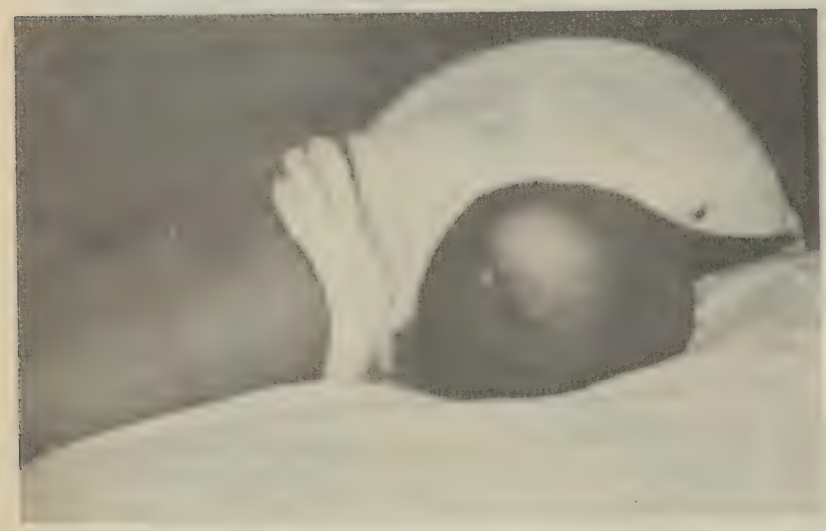
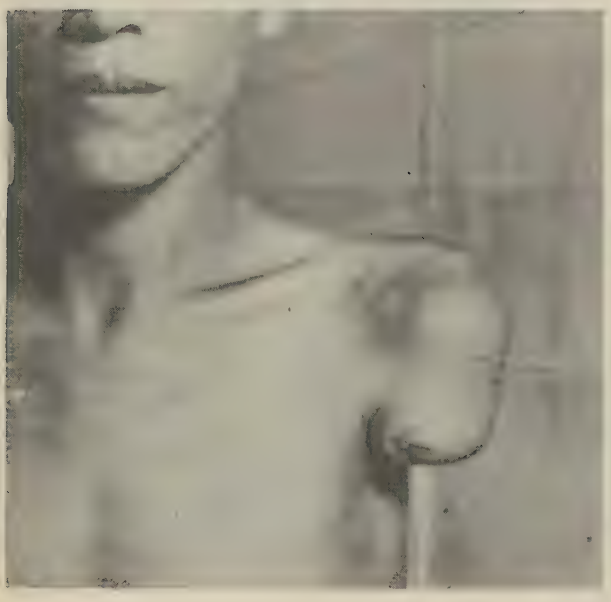


Fig.8. Revision; pre-operatively was open-knee disarticulation with terminal granulations. Quadriceps mechanism too scarred to permit a Gritti-Stokes.

Fig. 9. Revision; amputation at mid-thigh (right leg) was unsatisfactory for prosthesis.

MISCELLANEOUS ILLUSTRATIONS OF AMPUTATIONS
(unnumbered and untitled)

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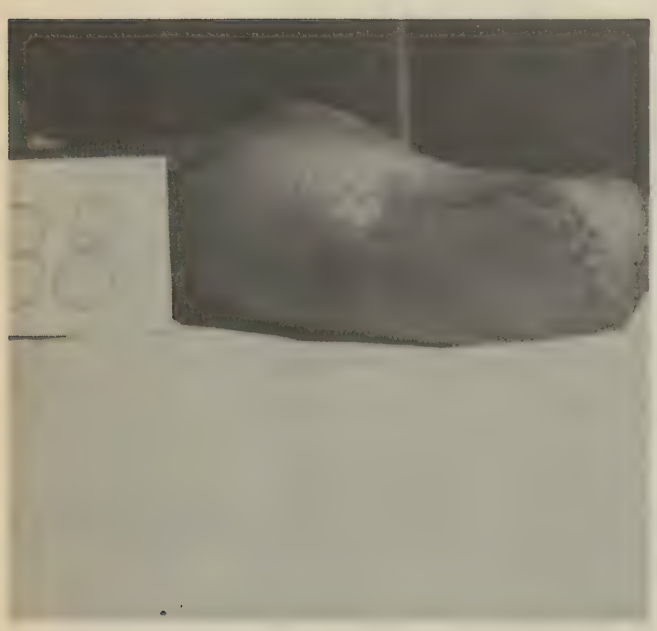
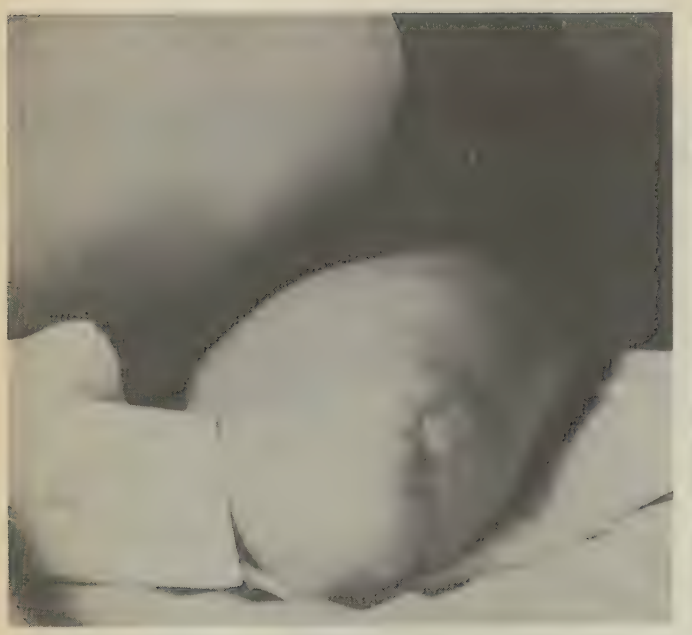
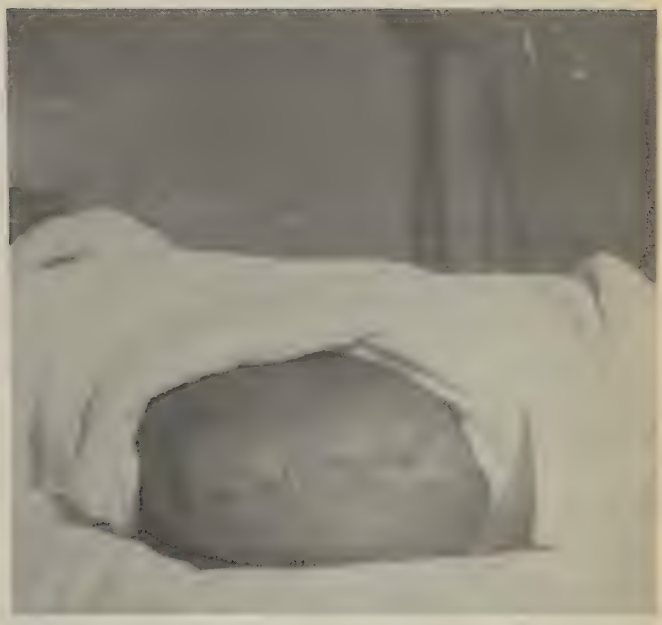
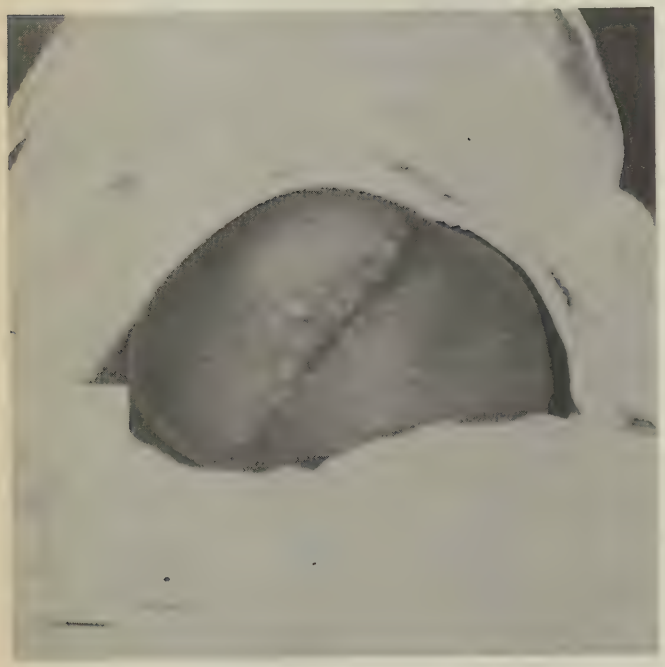
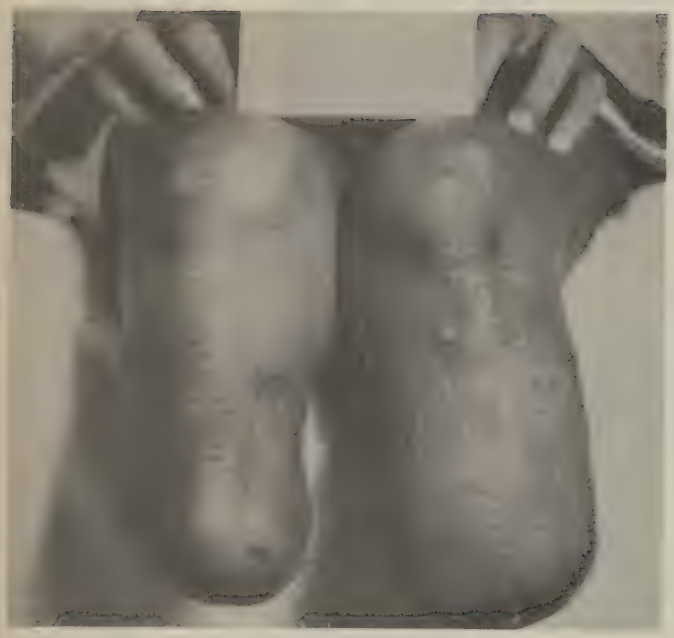
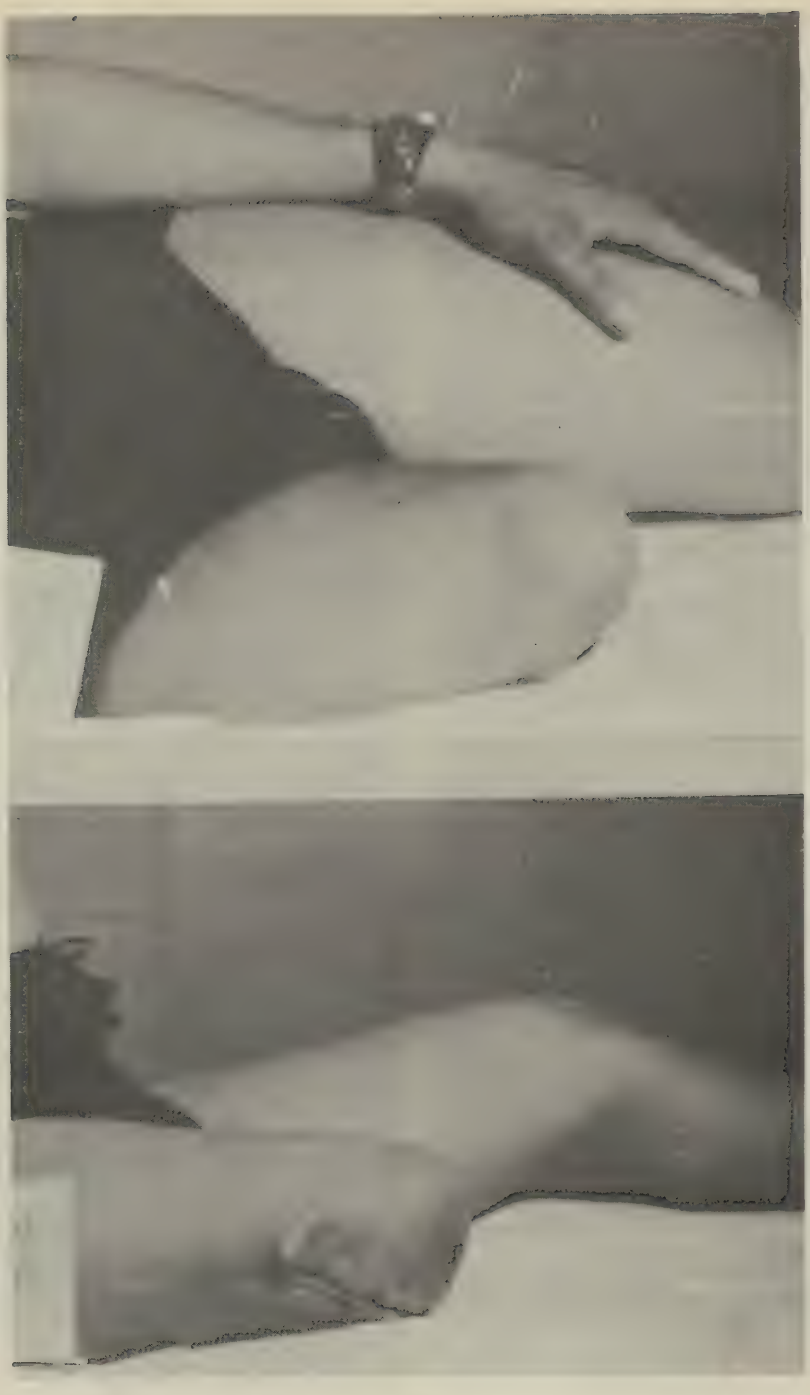












PART IV
PHYSICAL MEDICINE

A.

PHYSICAL THERAPY

1st Lt. Carol Stange, MDPT, formerly at McGuire General Hospital, was placed in charge of this department and, with 1st Lt. Lillian Emrick to assist her, conducted the actual treatment of the patients as well as the training of the Filipino nurses who were later assigned to the unit for further experience.

The physical therapy section of the unit began work with patients immediately upon arrival. Before the physical therapy department at the amputation center was complete, the Philippine Scouts were treated at the physical therapy department of the 155th Station Hospital. Lts. Forsyth and Hayden were most helpful in carrying out instructions in exercise and bandaging of the amputees at their hospital. The Philippine Army amputees were treated at the 1st Philippine General Hospital (now V. Luna General Hospital, Philippine Army), where the Philippine Army nurses were most helpful in beginning treatment of those amputees.

Until the physical therapy departments of the amputation center were complete, Lt. Stange spent the mornings organizing the two clinics in exercise and walking and the afternoons with the amputees at the above-mentioned hospitals. On 14 June 1946 facilities for physical therapy at the amputation center were complete, with all the exercise racks, heat lamps, ultra-violet lamps and whirlpool baths to be seen in any large amputation center. This department was exceedingly busy at all times. The buildings in which the classes in walking were held were equipped with full-length mirrors, hand-rails for beginners'

Fig. 10. Building for training amputees, with stairs and mirrors at far end.

Fig. 11. Building for training amputees, with parallel bars for beginners.

classes, and various types of stairs and inclined planes for teaching walking and stair-climbing.

On 14 June two nurses of the Philippine Army were assigned to the center to learn and to assist in the physical therapy care and treatment of an amputee from the time of his amputation until he is able to use his prosthesis and is discharged from the hospital. After they had received several weeks of training these two nurses were suddenly discharged from the Army. However, four new nurses—Capt. Masilang, Lt. Castro, Lt. Maniquis, and Lt. Aglugub—were assigned to the unit by the Philippine Army with a promise that they would stay. When these four new nurses arrived, teaching had to be started from the beginning; and for the first week Lt. Stange continued teaching classes and training the new nurses at the same time. There were approximately 100 amputees and each was treated twice daily. Filipinos are adept with their hands, and after the first two days the patients were able to bandage their own stumps.

After a week of observation, Lt. Castro was given a group of lower-extremity therapeutic exercises and put in charge of the lower-extremity classes. Lt. Aglugub was given a group of upper-extremity exercises and put in charge of all arm classes. The exercises included types of activities to be done on the pulleys and weights as well as those to be done on

Fig. 12. Class of above-knee amputees at pulley weights in physical therapy.

Fig. 13. Class of below-knee amputees at pulley weights in physical therapy.

plinths or in a standing position. Capt. Masilang and Lt. Maniquis were given detailed written instructions concerning their duties in the clinic for walking. By the end of the week some of the confusion had been ironed out, and on Saturday (when no patients reported for treatment) the entire morning was spent in clearing up more problems. The following week the Filipino nurses remained in the capacity

of the previous week and with repeated instruction the clinics became moderately well run.

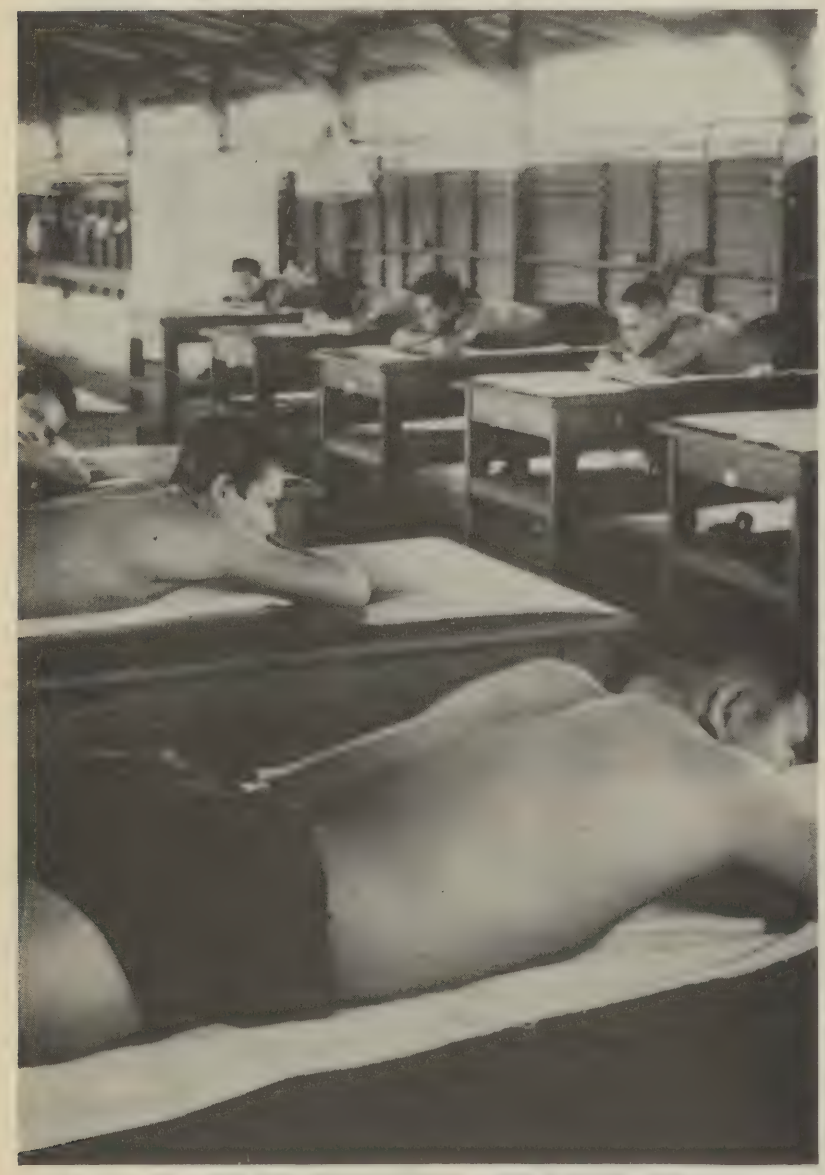


Fig. 14. Physical therapy. Plinths and arrangement of room.

On Saturday the schedule of the nurses was changed. The two nurses in the clinic for exercise instructed the two who were to take over that clinic, and the nurses from the clinic in walking instructed their successors. All instruction by Filipinos was supervised and information omitted was supplied.

The schedule of the nurses was changed every two weeks at the beginning of the training and later, after they had become familiar with the routine, schedules were changed weekly. Saturday mornings throughout the six months were spent in theoretical and practical instruction and in instruction in organization and clinical duties.

With the first group of nurses, preprosthetic tests were taught at the beginning, but because of the large number of patients being treated, most of whom already had received their preprosthetic test, this procedure was found impractical for the four new nurses until they had mastered the routine treatment of an amputee. It was not until about the middle of August that the nurses learned to give a preprosthetic test.

Fig. 15. Physical therapy. Plinths and arrangement of room.

The test in walking in itself did not require much instruction because the daily schedule for classes in walking included all activities in the test.

DAILY SCHEDULE FOR ACTIVITIES IN CLASSES IN WALKING

MONDAY
Exercise and balancing on prosthesis
Walking
Sitting in chair
Picking up objects

TUESDAY
Exercise and balancing on prosthesis
Walking
Going up and down stairs

WEDNESDAY
Exercise and balancing on prosthesis
Walking
Turns ---- 180°
90°
45°
Going up and down curb

THURSDAY
Exercise and balancing on prosthesis
Walking
Going up and down stairs

FRIDAY
Exercise and balancing on prosthesis
Walking
Walking up and down ramp
Sitting and rising from floor

Actually instructing the nurses to teach a patient to walk well on a prosthesis was more difficult. After the fundamentals had been learned, the following schedule was necessary to insure a well-balanced hour:

SCHEDULE FOR CLASSES IN WALKING AND DUTIES OF OFFICERS

Each officer stays two weeks in section on walking.

1st Week:

Beginners AK	at 0930
BK	at 1030
Beginners AK	at 1430

2nd Week:

Intermediate AK	at 0830
Advanced AK	at 0930
Intermediate AK	at 1330
BK	at 1430

When an officer is not conducting a class he is observing and assisting the other officer.

1. Assisting patients needing individual attention.
2. Taking attendance.
3. Attending phonograph.
4. Taking charge of leg cupboard.
5. Seeing that patients apply alcohol and powder and bandage stumps after prosthesis is removed.

Phonograph is to be played only during exercise, walking and rhythm portion of the hours.

Tests in Walking:

AK Test	Tuesday 0930
BK Test	Wednesday 1030

0930 Beginner AK Walkers - between parallel bars
1430

Exercise	-	15 minutes
Walking) About face)	-	30 minutes

0830 Intermediate AK Walkers
1330

Exercise	-	15 minutes
Walking	-	15 minutes
Acitivities	-	30 minutes

0930 Advanced BK Walkers

Rhythms and Dancing	-	30 minutes
Activities	-	30 minutes

1030 BK Walkers
1430

Exercise	-	15 minutes
Walking	-	15 minutes
Activities	-	30 minutes

At first the Philippine Army nurses had a difficult time writing progress notes, but after the following bulletin showing what information was desired was posted, these notes improved:

PROGRESS NOTES

1. Initial progress note should contain the following information:

   a. Date of revision
   b. Condition of scar
   c. Condition of muscle strength of stump extremity
   d. Shape of stump - shrinking, etc.
   e. Condition of other extremities.

2. Date of surgery and resumption of treatment - and what was done in surgery.

3. Date prosthesis was fitted and date patient began to attend walking class.

4. Date of completion of test in walking.

5. Final note should contain:

   a. Fit of prosthesis
   b. Condition of stump
   c. Treatment discontinued, patient discharged from hospital.

The pre- and post-prosthetic training of the arm amputees was carried out primarily by the occupational therapy department except for the classes in muscle building, which were conducted by the physical therapy department.

All convalescent patients were started on exercises in bed as soon as the cast and sutures were removed from the stump, which usually took

place on the tenth postoperative day and continued until the twenty-first to the twenty-eighth day, when the patient was allowed to attend classes with the unit.

Patients with contractures were treated routinely in the exercise clinic and were treated individually at 1030 with heat, massage, active motion, and forcing in some instances.

On written order from the ward surgeon the patient started active physical therapy classes, which were continued twice daily until his discharge. From the first day the patient was fitted into an overall plan which was designed to give him a maximum of care in a minimum of time. The schedule followed is outlined below:

Pre-prosthetic Training (on convalescent wards):

1. Convalescent bed exercises starting on the tenth postoperative day
2. Preliminary classes in stump-wrapping and stump hygiene
3. Preliminary muscle-building exercises

(with the unit)

1. Advanced classes in stump-wrapping and stump hygiene
2. Active muscle-building exercises through the use of weights, and active group games such as volleyball, badminton and boxing
3. Special classes and treatment of patients with contractures

Post-prosthetic Training (with the unit):

1. Adjusting and wearing the limb
2. Care of stump and stump socks
3. Balance classes with the limb
4. Classes in walking
    a. Beginners
    b. Intermediate
    c. Advanced
5. Step-climbing classes
6. Rough-terrain walking classes
7. Simple mechanical care of the limb and minor repairs

Upon satisfactory completion of the pre-prosthetic training period the patients were seen by the surgeon, the physiotherapist, and the limb-maker, and if all was well the patient was sent to the shop to be measured and a cast made for his limb. While the limb was being made the patient continued with his physiotherapy classes.

After they received their prostheses patients were placed in the classes in walking and allowed to advance as fast as they passed practical

achievement tests. These tests were conducted once each week, and the patient had to be able to demonstrate by actual exercises in walking his ability to maintain good balance and good walking habits and to climb stairs satisfactorily. After he had completed these tests the patient was seen again by representatives from the three departments. Each checked that part of the limb or of the patient which was his responsibility, and when all agreed that the patient had received maximum hospital benefit he was discharged from the unit.

Procedures used in the washing and rolling of elastic bandages were taught to the nurses and Japanese POWs, who took excellent care of the bandages. Methods used were similar to those employed in the States. The soiled bandages were folded (size 4x4), tied with string, and placed in a Bendix washer. After the bandages had been washed and thoroughly rinsed, the string was removed and the bandages unfolded and laid on a movable platform to dry in the sun. The platform was 7' long and 4' wide with 2" slats placed 2" apart. In the beginning the POWs pulled all the stretch out of the bandages when they used an electric rolling machine; however, after they understood that a loose roll was desired, all was well.

At the end of the six months, the center had treated 192 amputees, of whom very few had contractures. Three patients had limited range of motion in the shoulder joint when they arrived in the center. One contracture was caused by an old fracture of the head of the humerus with moderate destruction of the joint space. The range of motion was slightly improved on this patient. Another of the shoulder contractures attained normal range rapidly. The third was a contracture of long standing and did not improve to any great degree. One patient had an extension contracture of the hip, which was due to an old fracture of the head of the femur. The patient was able to flex the thigh approximately 45°. There was one flexion contracture of the knee joint of a short below-knee stump. This was a contracture of long standing and because of the shortness of the stump a bent-knee prosthesis was made for the patient.

Fig. 16. Class of above-knee amputees walking on ramp and stairs.

Fig. 17. Mixed class of above- and below-knee amputees walking on ramp and stairs.

Fig.18. Mixed class in walking, with above- and below-knee amputees.

Fig.19. Amputee with knee-bearing prosthesis.

Fig. 20. Amputee with bent-knee prosthesis climbing stairs.

Fig. 21. Above-knee amputee climbing stairs in normal manner.

←

Fig. 22. Amputee with short below-knee stump climbing stairs.

Fig.23. Amputee with short above-knee stump descending stairs.

Fig. 24. Below-knee amputee descending native-type stairs.

←
Fig. 25. Above-knee amputee descending native-type stairs.

Fig. 26. Training of below-knee amputees, with bilateral amputee at right.

Fig. 27. Bilateral amputee on first day of instruction.

Fig.28. Above-knee amputee practicing rising from floor.

Fig. 29. Above-knee amputee picking up objects from floor.

PHYSICAL THERAPY REPORT OF 9940 TSU-SGO FOR MONTHS
11 May - 11 June 12 June - 11 July

1946

17 May Arrived at Base X Headquarters for duty at 1st Philippine General Hospital with amputation unit.

18 May Examined stumps of 30 Filipino amputees. Stumps in good condition. Muscle tone and strength of amputated extremity good. Stumps not well-shaped nor shrunk - bandaging apparently done spasmodically if at all.

Visited physical therapy department of 1st Philippine General Hospital. Instructed nurses in care, exercise and bandaging of an amputee.

20 May Cleaning and repairing of amputation center buildings begun with help of 15 Japanese POW.

22 May Buildings cleaned and repaired. Equipment being brought from medical depot to amputation center.

23 May Examined stumps of 10 Philippine Scout amputees at 155th Station Hospital. Muscle tone and strength of amputated extremity fair. Stump not well-shaped nor shrunk.

Visited Lt. Forsyth and Lt. Hayden at physical therapy department of 155th Station Hospital; instructed them in care, exercise and bandaging of an amputee.

24 May Demonstrated care, exercise and bandaging of an amputee to nurses in physical therapy department at 1st Philippine General Hospital and to physical therapists at 155th Station Hospital. Until physical therapy department at amputation center is completed Philippine Army amputees will be treated by nurses at 1st Philippine General Hospital and Philippine Scouts will be treated by physical therapists at 155th Station Hospital.

25 May Began to uncrate equipment brought from medical depot. Breakage is moderate.

28 May Began preprosthetic tests on amputees at 1st Philippine General Hospital.

29 May Began preprosthetic tests on amputees at 155th Station Hospital.

4 June — Uncrating of equipment completed. Preprosthetic tests on amputees continued.

11 June — Completed preprosthetic tests on amputees at 1st Philippine General Hospital and 155th Station Hospital. Measurements taken of patients ready for prostheses.

14 June — Physical therapy treatment of amputees begun at amputation center. Two Filipino nurses assigned to center for afternoons only.

17 June — One Filipino nurse assigned to center in the hospital for surgery to foot.

27 June — One Filipino nurse trained as physical therapist for amputation center discharged from Philippine Army; other nurse still recovering from surgery.

29 June — Two occupational therapists, Misses Mary Berteling and Betty Nachod, arrived in Manila.

1 July — New Philippine Army nurse assigned to center as physical therapist.

2 July — Classes in walking begun for above-knee amputees.

11 July — Three Filipino nurses assigned to center as physical therapists.

BREAKDOWN OF AMPUTEES TREATED IN PHYSICAL THERAPY DEPARTMENT

11 MAY - 11 JUNE 1946

	BE	AE	BK.	AK	KNEE DISART	BILA-TERAL	SYME	ANKLE DISART	TOTAL
New patients	5	12	5	15	1	1	1	0	40
Old patients	0	0	0	0	0	0	0	0	0
Exercise Rx	110	264	110	330	22	44	22	0	902
Bandaging Rx	110	264	110	330	22	44	22	0	902
Patients walking	0	0	0	0	0	0	0	0	0

12 JUNE - 11 JULY 1946

	BE	AE	BK	AK	KNEE DISART	BILA-TERAL	SYME	ANKLE DISART	TOTAL
New patients	10	21	14	25	2	0	0	1	73
Old patients	5	12	5	15	1	1	1	0	40
Exercise Rx	660	1452	836	1760	132	88	44	44	5016
Bandaging Rx	660	1452	836	1760	132	88	44	44	5016
Patients walking	0	0	0	8	0	0	0	0	8

PHYSICAL THERAPY REPORT OF 9940 TSU-SGO FOR MONTHS
12 JULY - 11 AUGUST 1946

12 July Railings (wood) used as parallel bars erected for beginners' class of amputees.

Mirrors just arrived from States were uncrated and framed. Schedule so arranged that each patient reports for exercise and bandaging twice daily. Patients walking report for class in walking twice daily.

13 July Two white lines 1½ inches wide and 5 inches apart painted on floor between bars. White lines painted on floor the length of clinic.

15 July Mirrors placed about clinic in most advantageous spots.

The four Filipino nurses to stay with the unit as physical therapists are Capt. Masilang, Lt. Aglugub, Lt. Castro, and Lt. Maniquis.

17 July Capt. Keys and Capt. Brown inspected stumps of patients who had not been measured for prosthesis. Those ready for prostheses were measured.

18 July Two BKs passed test in walking. Pictures taken of exercise section of physical therapy department.

19 July Lower-extremity prostheses of all patients attending classes in walking inspected by Capt. Keys.

23 July Lecture on amputations and prostheses given by Capt. Brown and Capt. Keys to medical service of Manila area.

24 July Four AKs passed intermediate walking test. These AKs go upstairs in normal fashion.

Capt. Keys and Capt. Brown inspected stumps of patients not yet measured.

25 July Lower-extremity prostheses inspected by Capt. Keys.

29 July Advanced class in walking begun.

31 July Three AKs passed test in advanced walking.

Capt. Keys and Capt. Brown inspected stumps of patients not yet measured.

2 August Prostheses inspected by Capt. Keys.

9 August Received phonograph and records to be used in BK and intermediate and advanced AK classes in walking.

BREAKDOWN OF AMPUTEES TREATED IN PHYSICAL THERAPY DEPARTMENT
12 JULY - 11 AUGUST 1946

	BE	AE	BK	AK	KNEE DISART	BILATERAL	SYME	ANKLE DISART	TOTAL
New patients	7	5	6	9	1			1	29
Old patients	15	32	19	40	3	1	1	1	113
Exercise Rx	968	1672	1100	2156	176	88	44	44	6248
Bandaging Rx	968	1672	1100	2156	176	88	44	44	6248
Patients walking			9	25	1			1	37
Patients discharged	6								6

PHYSICAL THERAPY REPORT OF 9940 TSU-SGO FOR MONTHS
12 AUGUST - 11 SEPTEMBER 1946

14 August — President Roxas visited us VJ Day. He was impressed by our work and the ease with which patients used their limbs.

19 August — Four Filipino nurses have had training and experience in all phases of physical therapy treatment of amputees. A definite routine has been established and these nurses are now running the clinic.

22 August — Filipino type of stairs completed; these are used to give patients an opportunity to practice on native stairs.

3 September — All BE, BK and AK prostheses of patients ready for them have been fitted. There have been no AE prostheses completed because parts for AEs have not arrived from the States.

6 September — Inventory of entire 9940 TSU-SGO taken - expendable and non-expendable materials.

9 September — Capt. Lura, Director of Physical Therapists, AFPAC, inspected the center. She thought the set-up was excellent and was amazed at the size. Capt. Lura was pleased with the manner in which the physical therapy departments were run by the Filipino nurses.

10 September — Unofficially, physical therapy has been asked to relinquish one of its four Filipino nurses. Until request becomes official it will be ignored. This department needs four trained persons to run the clinic properly.

11 September — Received two copies of WD Pamphlet No. 8-10, "Individual Exercise for Lower-Extremity Amputees," from The Surgeon General's Office. Supplying each patient with a pamphlet with exercises checked for the individual would be ideal.

BREAKDOWN OF AMPUTEES TREATED IN PHYSICAL THERAPY DEPARTMENT
12 AUGUST - 11 SEPTEMBER 1946

	BE	AE	BK	AK	KNEE DISART	BILA-TERAL	SYME	ANKLE DISART	BENT KNEE	TOTAL
New patients	2	7	7	10	1	1	0	1		29
Old patients	13	37	20	49	4	1	1	1		126
Exercise Rx	660	1835	1128	2596	220	176	0	88		6764
Bandaging Rx	660	1835	1128	2596	220	176	0	88		6764
Patients walking			12	34	2	0	0	0	1	49
Patients discharged	9	0	7	0	0	0	0	1	0	17

PHYSICAL THERAPY REPORT OF 9940 TSU-SGO FOR MONTHS
12 SEPTEMBER - 26 OCTOBER 1946

25 September — Buildings, equipment and supplies in readiness for Philippine Army to sign and take over.

27 September — Parts for AK and BK prostheses unloaded from Gretna Victory. AE parts have not arrived from the States as yet.

30 September — Stump socks distributed to all amputees.

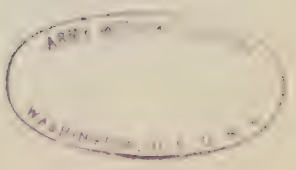
1 October — Philippine Army now in complete charge of amputation center although actual signing of papers has not taken place.

14 October — Capt. Brown and enlisted men left for POE. Capt. Keys still trying to complete transaction with Philippine Army.

26 October — Signature for supplies and equipment obtained from Philippine Army by Capt. Keys - business complete. Lt. Stange received orders for transfer from 9940 TSU-SGO to 4th General Hospital.

BREAKDOWN OF AMPUTEES TREATED IN PHYSICAL THERAPY DEPARTMENT
12 SEPTEMBER - 26 OCTOBER 1946

	BE	AE	BK	AK	KNEE DISART	BILATERAL	SYME	ANKLE DISART	BENT KNEE	TOTAL
New patients	4	5	2	5	0	0	0	0		16
Old patients	14	47	28	51	5	2	1	1		149
Exercise Rx	720	2080	800	1440	80	80	40	40		5280
Bandaging Rx	720	2080	800	1440	80	80	40	40		5280
Patients walking			10	20	3	1	0	0	1	35
Patients discharged	3	0	5	14	0	0	0	0	0	22



LIST OF AMPUTEES TREATED BY THE PHYSIOTHERAPY DEPARTMENT, MAY-OCTOBER 1946

NAME	AMPUTATION SITE	DATE OF SURGERY	TREATMENT BEGUN	NO. OF EX. RX	PROSTHESIS FITTED	NO. OF WALKING LESSONS	DISCHARGED
1. Tan, Constancio	RAK	19 June	20 May	2			AWOL
2. Pasukin, Galicano	LAK	5 Aug.	20 May	66			
3. Paje, Antonio	RAK	28 June	20 May	88			
4. Enriquez, Agapito	RAK	14 June	20 May	66			
5. Ramos, Daniel	RBK	6 Sept	21 June	44			AWOL
6. Cipriano, Roberto	LAK	20 July	25 June	18			
7. Orden, Emiterio	RAK	24 June	1 June	29			
8. Lopez, Crescencio	RAK		8 June	52			
9. Fabian, Venancio	RBK	8 July	21 June	45			
10. Mallari, Eusebio	LBK		24 June	55			
11. Tiburcio, Ruben	LAK SYMES		28 June	6			
12. Sepaya, Gregorio M.	RBK		25 July	5			AWOL
13. Hernandez, Victorio	LBK		7 July	1			AWOL
14. Agrante, Pedro	RAK		25 July	50			
15. Bandillo, Vivencio	LAK		16 July	65			
16. Pechon, Doroteo	LAK		15 July	49			
17. Mangubat, Ricardo	LAK		1 July	50			
18. Rule, Pedro	LAK		30 July	52			
19. Ramilo, Ricardo	RAK	19 July	12 July	75			
20. Condes, Justo	RAK	1 July	22 July	22			
21. Almania, Loreto	LBK	12 Aug.	11 July	47			
22. Nemesio, Victor	RBK	16 Aug	11 July	18			
23. Ubay, Jose	LBK	17 Sept.	20 Aug.	12			
24. Lonjas, Carlos	RAK	13 Sept	23 Aug.	4			
25. Maravillosa, Barsiloso	RAK	16 Sept.	23 Aug.	6			
26. Conching, Roberto	LBK	4 Sept	27 Aug.	3			
27. Santos, Concepcion	LAK	12 Sept	19 Aug.	7			
28. Serrano, Fernando	RAK	17 Sept	15 Aug.	3			
29. Cache, Celestino	RAK		5 Aug.	51			
30. Rollo, Florencio	RBK		20 Aug.	37			
31. Tansiongco, Beato	RBK-LBK	12 Sept.	23 Aug.	6			

NAME	AMPUTATION SITE	DATE OF SURGERY	TREATMENT BEGUN	NO. OF EX. RX	PROSTHESIS FITTED	NO. OF WALKING LESSONS	DISCHARGED
32. Burgos, Mariano	RBK	5 July	21 Aug.	39			
33. Arano, Amando	L Ank Dis		13 Aug.	44			
34. Aguila, Briccio	RBK	16 Aug.	1 Aug.	16			
35. Villame, Jesus	R Knee Dis		2 Aug.	59			
36. Fung, Teng	LAK	9 July	1 Aug.	52			
37. Hermita, Paterno	RAK		7 Aug.	45			
38. Escarola, Severino	RAK		22 Aug.	26			
39. Valdez, Maximino	LAK		21 Aug.	27			
40. Bucal, Santiago	RBK	13 Aug.	2 Aug.	27			
41. Pontanar, Casimiro	RAK	12 July	20 Aug.	15			
42. Ahumada, Pedro	L Knee Dis	3 Oct.	23 Aug.	26			
43. Vera, Wilfredo de	LAK		9 Sept.	1			AWOL
44. Valmores, Domingo	RAK	4 Sept.	26 Sept.	15			
45. Lucero, Leonardo	LAK	29 Aug.	19 Sept.	21			
46. Angangan, Rufino	RAK	Mar.	26 Sept.	14			
47. Novenario, Geronimo	LAK		10 Sept.	16			
48. Rojas, Rafael	RAK	15 Aug.	9 Sept.	36			
49. Antonio, Pedro	RBK	Aug.	16 Sept.	28			
50. Flores, Cesar	RAK		1 Oct.	4			
51. Lazatin, Ricardo	RBK		1 Oct.	8			
52. Pascua, Patricio	RBK		19 June	25	14 July	30	26 Aug.
53. Gable, Carlos	LAK	9 Oct.	18 June	25	3 July	110	23 Sept.
54. Elayda, Virgilio	LAK		30 July	0	12 Sept.	0	
55. Rosales, Tomas	RAK		19 July	32	13 Aug.	50	23 Sept.
56. Olivar, Adriano	RBK		3 June	0	6 Aug.	0	1 Sept.
57. Esperon, Sotero	RAK		15 June	88	5 July	128	23 Sept.
58. Abutin, Segundino	RAK		1 July	25	15 July	98	7 Oct.
59. Villamayor, Cirilo	RAK		20 May	56	2 July	110	23 Sept.
60. Sanchez, Primitivo	LAK		1 July	30	20 July	80	23 Sept.
61. Costales, Bernardo	RAK		14 June	44	17 July	103	23 Sept.
62. Gatan, Marcos	LAK		20 May	130	1 Aug.	60	23 Sept.
63. Dadis, Higino	LAK		20 May	88	16 July	121	23 Sept.
64. Salud, Inocencio	RBK		20 June	20	31 July	101	16 Sept.
65. Pagala, Victor	RBK		20 June	85	6 July	66	23 Aug.
66. Juaini, Mahamed	LBK		29 July	44	31 Aug.	25	16 Sept.

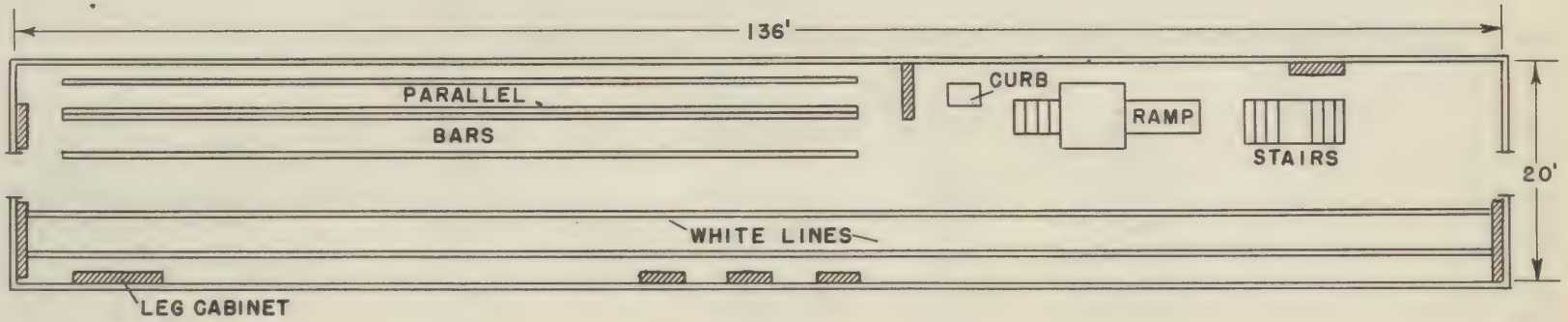
NAME	AMPUTATION SITE	DATE OF SURGERY	TREATMENT BEGUN	NO. OF EX. RX	PROSTHESIS FITTED	NO. OF WALKING LESSONS	DISCHARGED
67. Naber, Maximo	RAK		20 May	66	9 July	132	7 Oct.
68. Reguyal, Isauro	LBK		20 May	88	31 July	40	26 Aug.
69. Bagay, Francisco	LBK		26 July	25	13 Aug.	44	10 Sept.
70. Beza, Agripino	RAK		24 June	22	8 July	88	23 Sept.
71. Languisan, Tomines	LAK		14 June	70	18 July	50	23 July
72. Reyes, Augusto de los	RBK		20 May	66	18 July	25	26 July
73. Orpilla, Arcangel	RAK		20 May	85	15 July	75	23 Sept.
74. Uy, Deogracias	LAK		1 July	20	13 July	88	27 Sept.
75. Pagatpatan, Isabelo	LAD		1 July	20	11 July	22	19 Aug.
76. Jamin, Federico	RBK		13 June	25	27 July	88	3 Sept.
77. San Pedro, Edilberto	LBK		22 May	92	15 Aug.	30	29 Sept.
78. Escobar, Teofilo	LBK		27 June	88	7 Aug.	35	17 Sept.
79. Belen, Sotero	LBK		20 May	98	6 Aug.	22	23 Sept.
80. Capacia, Pedro	RAK		28 June	29	11 Aug.	35	
81. Luna, Mariano de	LAK	5 Sept.	12 June	58	31 July	33	
82. Gayugoy, Rafael	RAK		3 July	29	23 July	27	
83. Marders, Philip	LAK		31 May	45	5 July	41	
84. Pobre, Felix	RBK	27 July	22 July	0	22 July	10	
85. Regner, Cosme	LBK	4 Aug.	15 July	18	13 Aug.	13	28 Aug.
86. Babiero, Angel	LAK		11 July	18	7 Aug.	6	
87. Mateo, Jacinto	LBK	15 July	24 June	14	19 Aug.	11	
88. Quebral, Cesar	RAK		13 June	22	1 Aug.	8	
89. Villacorta, Oscar	LKD		28 Aug.	0	28 Aug.	17	
90. Riarte de la, Fausto	RBK		15 July	50	28 Aug.	32	
91. Lagonero, Teodoro	RBK	15 July	15 July	40	19 Aug.	31	
92. Torres, Emiterio	LAK		20 May	6	14 July	28	AWOL
93. Santos, Bienvenido	RAK		28 June	1	5 July	10	AWOL
94. Pineda, Salvador	LKB	15 June	28 June	6	23 July	39	
95. Quiban, Armando	RAK	1 Oct.	20 May	13	12 July	0	
96. Arboleros, Leon	RAK		20 May	68	8 July	74	
97. Jacson, Bayani	LAK		24 June	36	7 Aug.	38	
98. Dumaguing, Gregorio	RBK		30 June	53	28 Aug.	45	
99. Bernanrdo, Policarpio	RAK		20 May	71	15 Aug.	57	
100. Daduya, Gerardo	RKB		11 July	66	4 Sept.	35	

NAME	AMPUTATION SITE	DATE OF SURGERY	TREATMENT BEGUN	NO. OF EX. RX	PROSTHESIS FITTED	NO. OF WALKING LESSONS	DISCHARGED
101. Vela, Magno	RAK		15 July	30	9 Aug.	50	
102. Ducusin, Victoriano	LBK		15 July	53	29 Aug.	32	
103. Salim, Jacinto	LAK		24 June	66	29 July	46	
104. Celeste, Pedro	LAK		20 May	15	25 July	36	
105. Betco, Juanito	LAK		20 May	34	30 July	31	
106. Candelaria, Alfredo	RAK	28 June	7 June	19	19 Aug.	37	Not yet dis.
107. Balasbas, Eugenio	RAK	3 June	3 July	30	20 Aug.	38	Not yet dis.
108. Fuertes, Bernabo	RBK		20 May	79	13 July	37	Not yet dis.
109. Suyom, Francisco	RBK		21 Aug.	25	20 Sept.	22	Not yet dis.
110. Roda, Carmelo	LBK	20 July	28 June	35	26 Sept.	16	Not yet dis.
111. Gocotano, Crisanto	RBK		24 June	77	28 Aug.	31	Not yet dis.
112. Ramos, Gaudencio	LBK		11 July	74	28 Aug.	23	Not yet dis.
113. Ilustre, Jesus	LBK	9 July	23 Aug.	24	19 Sept.	17	Not yet dis.
114. Nadal, Bartolome	Bils. BKs	11 July	20 May	0	18 Sept.	12	
115. Abrazado, Teopisto	RAE		2 Aug.	128			
116. Abrazado, Manuel	RAE	25 June	20 May	128			
117. Abella, Silverio	LBE		15 July	164	20 Aug.		
118. Alama, Valentin	RAE	30 Sept.	24 July	146			
119. Aguilar, Jorge	LAE	11 July	24 June	160			
120. Ambion, Jose	LAE		20 May	216			
121. Angeles, Jose	L.S.H. Dis.	19 July	12 Aug.	100			
122. Gonzales, Faustino	LAE		1 June	254			
123. Araullo, Elpidio	LAE		17 June	82			
124. Azurin, Teodoro	RBE		30 Sept.	16			
125. Avellanida, Eulalio	LBE		8 July	66			
126. Batin, Pantaleon	RAE		1 July	190			
127. Bauzon, Roberto	LAE		8 July	76			
128. Balberan, Jose	LAE	29 July	8 July	90			
129. Bernias, Porfirio	L.S.H. Dis.	24 July	22 Aug.	84			
130. Busogong, Pedro	RBE	3 Sept.	22 Sept.	28			
131. Camet, Toribio	LAE		13 Sept.	46			
132. Castillanos, Mamerto	RAE		18 July	156			
133. Carriago, Serapio	RAE	3 July	6 Aug.	112			
134. Calsada, Dalmacio	RAE	29 Aug.	23 Aug.	87			
135. Cervantes, Flavio	RAE	27 June	20 May	168			

NAME	AMPUTATION SITE	DATE OF SURGERY	TREATMENT BEGUN	NO. OF EX. RX	PROSTHESIS FITTED	NO. OF WALKING LESSONS	DISCHARGED
136. Cortez, Antonio	LAE		11 July	156			
137. Dalacat, Eugenio	RAE		20 May	200			
138. Daoayan, Ricardo	LAE		6 Aug.	126			
139. Echalar, Mauricio	RAE		13 June	72			
140. Estepa, Benjamin	RAE		1 July	60			
141. Famatiga, Pedro	RAE		18 July	170			
142. Faraon, Federico	LBE	20 Aug.	26 July	146			
143. Felipe, Teofilo	LAE	21 Aug.	19 Aug.	58			
144. Ferrer, Jose	RBE	23 July	21 Aug.	65			
145. Galeon, Fortunato E.	RAE		5 July	170			
146. Goce, Simplicio	LAE		18 June	194			
147. Jutic, Domingo	LAE		27 June	250			
148. Hernandez, Ramon	Rt. Index		22 Aug.	84			
149. Larita, Rolando			1 June	180			
150. Licaroz, Federico	Rt. Metac		11 Sept.	46			
151. Mayer, Leon	RAE	2 July	2 July	212			
152. Manio, Agustina	LAE	30 Aug.	17 Sept.	50			
153. Mantelora, Severo	LAE		3 Oct.	12			
154. Miranda, Fedrico	LAE		20 May	156			
155. Navarro, Martin	RAE		15 July	162			
156. Ojada, Roberto	LAE	11 July	5 July	186			
157. Pasabing, Pastor	RAE	12 June	20 May	224			
158. Palma, Francisco	LAE	25 July	27 Aug.	84			
159. Paunen, Gaudencio	RAE	3 Sept.	22 Sept.	50			
160. Patongan, Martin	RAE	11 Sept.	1 Oct.	14			
161. Polonia, Desiderio	LAE		25 June	204			
162. Ramos, Primitivo	RBE		18 Sept.	52	24 Sept.		
163. Racho, Francisco	LBE		20 Sept.	50			
164. Rodriguez, Jose	LAE		6 Aug.	54			
165. Rogondola, Hilario	LAE		1 June	200			
166. Rodriguez, Gregorio	RAE		20 May	152			
167. Sermeno, Clemente	LAE	24 June	20 May	174			
168. Serrillo, Eugenio	LBE	13 Sept.	28 Aug.	84			
169. Sumang, Gregorio	LAE		1 July	234			
170. Tilos, Basilio	L. Metac	26 Sept.	23 Aug.	36			

	AMPUTATION SITE	DATE OF SURGERY	TREATMENT BEGUN	NO. OF EX. RX	PROSTHESIS FITTED	NO. OF WALKING LESSONS	DISCHARGED
171. Vianson, Bonifacio	LAE	27 July	22 July	96			
172. Yaneza, Nicolas	RBE		18 July	170			
173. Undan, Federico	RAE		8 July	180	30 Sept.		
174. Boredor, Santiago	RAE	22 July	16 Aug.	98	30 Sept.		
175. Aquino, Domingo	LAE		20 May	156	20 Sept.		
176. Magat, Alejandro	LBE		6 Aug.	112	4 Aug.		2 Oct.
177. Agonoy, Roque	RBE		20 May	72	10 July		5 Aug.
178. Bucog, Pablo	RBE		9 July	156	22 Aug.		18 Sept.
179. Pena, Rafael de la	LBE		17 July	94	19 July		28 Aug.
180. Desquitado, Manuel	RBE		20 May	84	10 July		5 Aug.
181. Escano, Cirilo	LBE		1 July	4	9 July		17 July
182. Fabian, Julio	LBE		11 July	52	17 July		20 Aug.
183. Galve, Cayetano	L. Metac		24 July	10	26 July		30 Aug.
184. Florentino, Marcelino	RBE		20 May	12	9 July		10 Aug.
185. Garambas, Renato	RBE		8 July	104	7 Aug.		28 Aug.
186. Gomez, Camilo	LBE		1 July	98	24 July		3 Sept.
187. Gonzales, David	LBE		9 July	54	24 July		5 Aug.
188. Guzman, Leoncio de	LBE		22 July	82	19 Aug.		23 Aug.
189. Mendoza, Zosimo	LBE	15 Aug.	30 July	128	5 Sept.		18 Sept.
190. Romasanta, Ernesto	LAE		20 May	162	6 Aug.		4 Sept.
191. Sacoma, Victoriano	LBE		20 May	60	12 July		5 Aug.
192. Saldivar, Celestino	RBE		20 May	56	10 July		6 Aug.
				13,117		2,837	

In addition to these patients there were four O.P.D. patients and 30 postoperative convalescent patients who were receiving P.T. instruction individually.



FLOOR PLAN

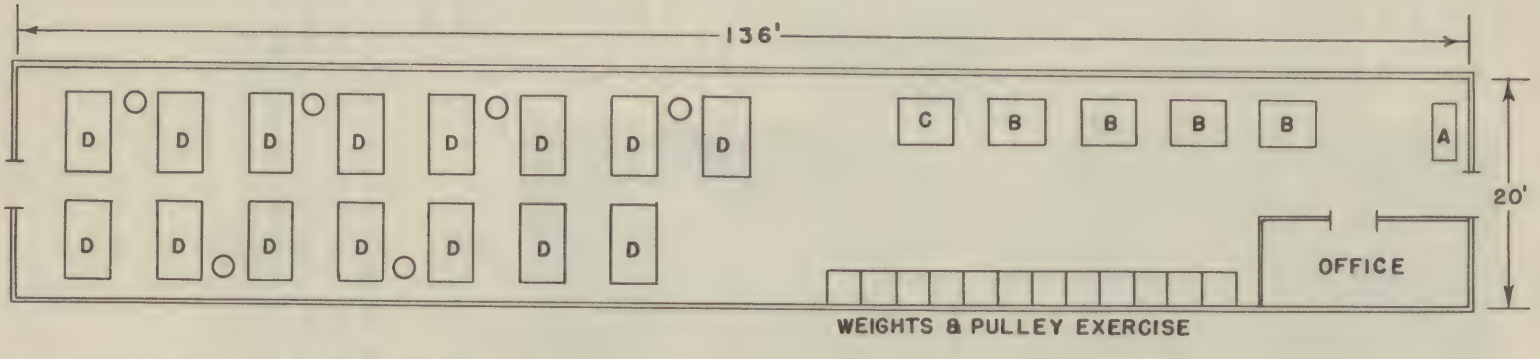
WALKING DEPARTMENT, 9940-TSU-SGO

FEET

10 0 5 10

MIRRORS

Fig. 30



A ELECTRIC BANDAGE ROLLER
B EXERCISE BENCHES
C INVALID WALKER
○ LAMPS
D PLINTHS

FLOOR PLAN
PHYSICAL THERAPY, 9940 TSU-SGO

FEET
20 0 10 20

Fig 31

B.
OCCUPATIONAL THERAPY SECTION

Fig. 32. Occupational Therapy Shop. Note canvas cover on band saw necessitated by moisture.

The Occupational Therapy Shop was set up in one of the standard buildings—100' x 20'. The building was wired for the power machinery, and outlets were put in for lights; but since light bulbs were on the "not available" list, inadequate lighting was always one of the handicaps. With the assistance of Japanese prisoners of war, equipment was set up and sufficient supplies uncrated to allow patients to receive treatment on 9 July. At this time the equipment consisted of an electrically-driven band saw, drill press and sander, two foot-power bicycle jig saws, two foot-power treadle sanders, and a floor loom. Eight Structo hand-operated looms were added later. Leatherwork, card weaving and cord knotting were also begun immediately. Ceramics was omitted as a kiln is not on the standard list of supplies. Printing presses, with their rubber rollers, deteriorate too quickly in that climate to be practical, so they were not sent over. As it was deemed advisable to use only supplies which could be replaced easily by the Filipinos, or for which adequate native supplies could be used once the original supply was gone, plastics were also eliminated. Although shipping documents showed that a complete list of supplies and equipment had been ordered and sent, certain items

never arrived. This was a definite handicap to the program. Paint and varnish were among the missing items, so all woodwork projects had to leave the shop unfinished. Lumber, supposedly available in that theater, was not available; scrap lumber from packing cases and old buildings had to be used. Leather lacing never arrived, nor did snap fasteners. Although six floor looms were ordered, only one arrived, and it was badly in need of repair—as were many of the table looms.

Fig.33. Occupational Therapists, Miss Betty Nachod and Miss Mary Berteling.

The first patient sent to Occupational Therapy began his treatment even before the shop was set up. He had been a captain in the Philippine Army and was preparing to write his bar examinations. As he was a right arm below-elbow amputee, writing with his prosthesis, which was his primary interest, could be started immediately. Even though he was a native Manilan he was able to give the therapists interesting and valuable information about life in the provinces from which most of the patients came. As a result of his information, emphasis in the treatment and training of these men was placed on the use of farm tools and hand woodworking tools, with little attention to the use of telephones (there are few in the provinces), opening and closing of windows (they are almost non-existent in the Philippines), and many other training items necessary in the United States.

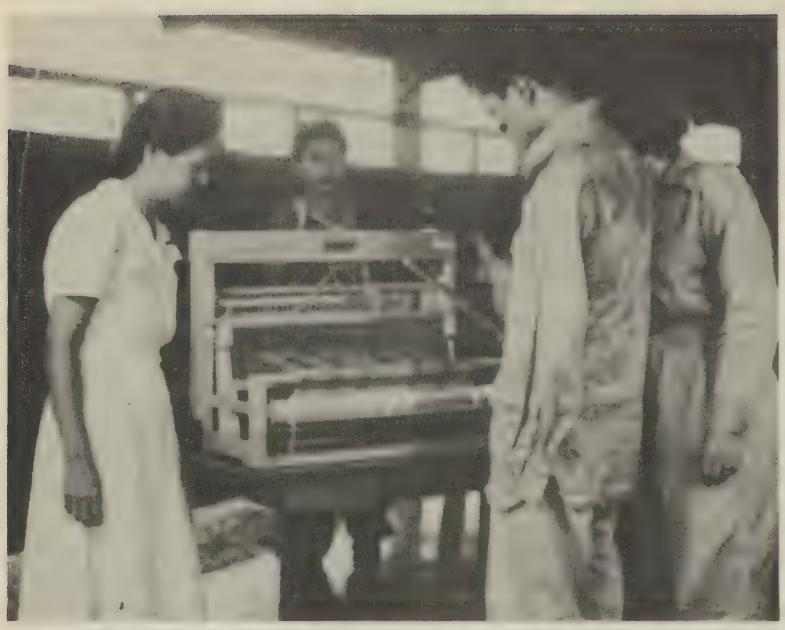


Fig. 34.Above-elbow amputee being given preprosthetic training.

Preprosthetic training was started as planned but was found to be of very little practical value. Most of the patients had had their amputations from one to five years and of necessity had learned to get along with only one arm. However, it gave the patients a chance to do diversional work and to observe the training and treatment of patients who had already been fitted with their prostheses. Training in tying shoes and neckties was not stressed because many patients found these articles of clothing superfluous. It was interesting to note that many of the patients wore wooden clogs instead of shoes, and it was not uncommon for a therapist to find a patient with his bare foot on a bench or table holding his work securely with his foot.

The prosthetic training was very similar to that carried on in hospitals of the States. Writing with the prosthesis was not emphasized unless the patient requested it because most of the patients who had lost their dominant arm had successfully switched to writing with their other arm and it was felt that it was unnecessary and confusing to ask them to switch again. A checker game with men of different sizes and shapes was made and used frequently in the early training in the manipulation and control of the prosthesis. Although most of the patients had not played the game previously, they learned it quickly and enjoyed playing it, so it was a successful piece of training equipment. On the other hand, an amputation panel, used successfully in the States, was not found worthwhile; first, because it was almost impossible to get the necessary accessories, such as doorknobs, faucets and light switches of different types; and second, because many of the patients who lived in the provinces, in the typical native nipa huts, had never seen or used these things. Instead, the use of woodworking and garden tools was stressed. Office activities such as typing, filling a fountain pen, clipping papers together, etc., were important only to those who would have

occasion to use them. Teaching the use of eating utensils was a little difficult because none were available in the Filipino hospital—so that, although they could practice in the shop, when actually eating their meals they simply ate with their fingers. Nor did it matter what type of cup and saucer they were given to practice with, as beer cans with the tops cut off took the place of cups in their hospitals.

Fig. 35. Below-elbow amputee using tableware.

All crafts were useful in general training for dexterity in the use of the prosthesis, and their universal popularity was once more proved. Due to the lack of money in the Philippine Army, no craft work is available in Philippine hospitals; therefore, the amputees, who were of course the only patients permitted to use the facilities of Occupational Therapy, were envied by the other patients in the hospitals. Skill varied just as

Fig. 36. Below-elbow amputee operating table loom.

Fig. 37. Below-elbow amputee engaged in leatherwork.

much in Filipino patients as it does in American patients. There were those who could do beautiful, original work with a minimum of instruction, and there were those who with a maximum amount of time and instruction did amateurish and sloppy work; the majority of patients did work somewhere in between. As is true in U.S. Army hospitals, leatherwork was probably the most popular craft, with weaving and woodwork running a close second. Because of the disrupted economy of the country and the poverty of most of the patients, their woodwork projects were all of practical use—wooden suitcases, wooden hangers, wooden shoes, boxes, small cupboards, tables, and chairs were among the many items made.

Because of the natural coordination which Filipinos seem to have, most of these men were ready for discharge in a shorter length of time than the average American patient. Another contributing factor was the physique of most of the patients. Their slight build simplified the fitting of the prosthesis and there was seldom the problem of limitation of elbow flexion due to excess flesh on the forearm. However, they never seemed to acquire a real understanding of the mechanical working of the prosthesis, which American soldiers picked up quickly. One often had the feeling that the prosthesis, while appreciated and gratefully accepted, was something to be worn only on Sunday—not because it would not be useful but because it was too valuable to risk breaking, with the trip from the provinces into Manila for repairs expensive and difficult.

Records similar to those kept on amputees in the United States were used. When a patient was admitted to the shop, an achievement chart was filled out with name, rank, age, site of amputation, whether right or left, whether dominant hand prior to injury, date of injury, date of first treatment, occupation prior to induction, and educational level. The date the prosthesis was received, total number of treatments, and date of discharge from Occupational Therapy were filled in later. The number of farmers, buggy drivers, etc., and the average educational level, emphasized the need for difference in training between Filipino and American soldiers. Many of the Filipino soldiers had never reached high school because of (1) the lack of educational facilities in the Philippines and (2) the fact that the war had interrupted formal education for many of these people at an early age.

A weekly progress record was started on each patient, but until a patient received his prosthesis little progress was noted. Attendance records were also kept and a monthly report computed including the total number of treatments, average daily attendance, and the number of patients admitted during the month.

When an arm amputee had passed the achievement test and was ready for discharge, he was given an Occupational Therapy clearance slip by the therapist and the Physical Therapy Department was notified. The patient then reported to the Commanding Officer and to the surgeon, who carefully checked the prosthesis and the stump. If both were satisfactory the patient was given a hand and his hook and was sent back to his hospital with a clearance slip enabling him to be discharged from the hospital and the Army.

After the arm amputation program began to run smoothly, a program was started for the leg amputees. Since most of these patients had spent many months in the hospital with nothing to do, they all wanted to participate. Due to the limited space and personnel and the large number of leg amputees, it was not practical to allow all leg amputees to take part immediately. It was decided that after a patient had received his leg he would be accepted for Occupational Therapy upon the recommendation of the Physical Therapist. The program proved to be diversional as well as functional. Equipment for leg amputees was limited, consisting of the treadle sanders, bicycle jig saws and one foot-loom. Because of lack of a hydrogen gauge, legs could not be beaded around the top; and until this could be done it was impossible for many patients to operate foot-power machines without a great deal of pain. Records were kept on these patients, stating site of amputation, patient's ability to operate equipment, and number of treatments before discharge. When the patient passed the achievement test in Physical Therapy, the Occupational Therapy Department was notified and the patient was discharged.

Fig.38. American and Filipino Occupational Therapists. Left to right: Misses Bertel-ing, Nachod, Andaya, and Lt. Diaz.

Early in July a group of Filipinos from a government orthopedic hospital in Manila was sent to the unit for training in the different phases of the program. A nurse was sent to the Occupational Therapy Department and worked there for approximately three months. She quickly learned the crafts and grasped the purpose and technicalities involved in working with arm amputees. After several weeks of observation and practice in craft work she was able, under the therapists' supervision, to work with the patients. The fact that she spoke excellent English, Tagalog, and at least one of the 80 native dialects was of invaluable help many times.

In August a group of trainees was sent to the unit by the Philippine Army. A nurse from this group was also sent to the Occupational Therapy shop, where she received the same training as the civilian nurse. In this nurse's training, emphasis was placed on administrative work as she was to be in charge of the shop after the American personnel left. Very little training could be given either of these nurses in the treatment of above-elbow amputees, as no parts for this type of arm ever arrived. However, three sample arms were taken apart, rebuilt, and fitted to three patients; and after this, much time was spent with these patients, both for their sake and that of the nurses. It is interesting to note that as a result of a number of visits to the department made by the Minister of Health, the Philippine government has decided to select a small group of nurses to attend an occupational therapy school in the United States. These women will be trained in all phases of occupational therapy and will be able to train more of their own people on their return to the Philippines.

SUMMARY

The set-up was similar to that seen in occupational therapy departments in United States Army amputation centers, but with certain crafts eliminated and emphasis placed on different aspects according to the needs of the patients living in the Philippines.

Craft ability was much the same as that of American patients.

Patients were discharged in a shorter length of time than American patients for the following reasons:

1. There was no necessity for training of the remaining hand.
2. The natural coordination of Filipinos enables them to learn to use prostheses more quickly.
3. Economic necessity and the length of time they had to wait for prostheses spurred them on to greater diligence and practice.

RECOMMENDATIONS

If, in the future, occupational therapy departments are to be set up in tropical countries, the following changes should be made in equipment and supplies:

1. Looms should have heddles and reed made of aluminum or some other rustproof metal. It is impossible to keep these parts free from rust if they are made of steel.
2. As many tools and metal accessories as possible should also be made of rustproof metal for the same reason.
3. All leather should be treated chemically to keep it free from mold. The leather used in the limb shop had been so processed and it proved to be worthwhile.
4. Very little, if any, wool should be used.
5. A sum of money should be made available to buy native materials for some crafts already used and for native crafts which could be used if supplies were available.

STATISTICS

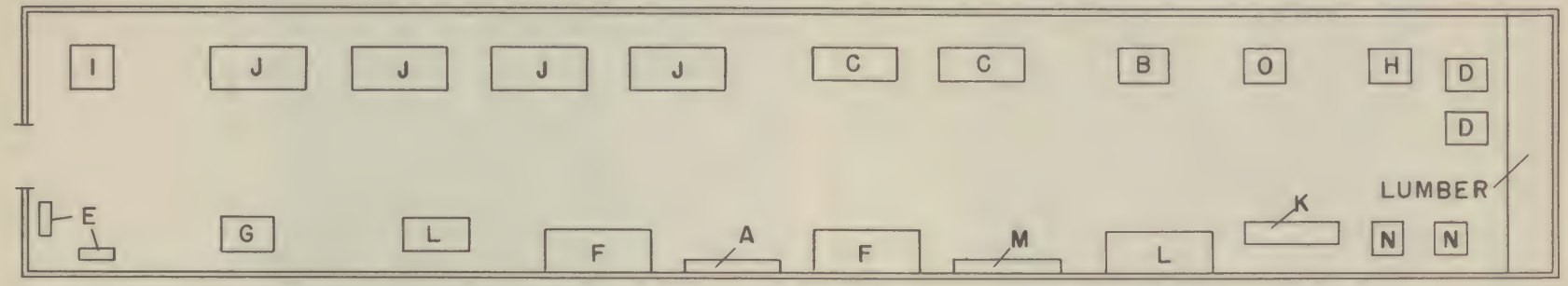
	Total No. Treatments For Month	No. Working Days	Average No. Pts. Per Day	No. New Pts. Per Month	Discharges
July	532	20	27	3 P.H.** 44 Arms	5
August	1355	21	65	1 P.H. 14 Arms 45 Legs	 6 3
September	723	19	38	10 Arms 10 Legs	4 17
October*	296	9	33	3 Arms 2 Legs	4

* Up to and including 11 October
** P.H. - Partial Hand Amputations

Total No. Patients 132

58 Leg Amputees
70 Arm Amputees
4 P.H.

No. double arm amputees	0	
No. dominant arm amputees	35	
No. non-dominant arm amputees	35	(One was a congenital amputation)
No. patients with additional injuries	7	(Included hemiparesis, loss of one eye, and injury to remaining hand)
No. below-elbow amputations	25	
No. above-elbow amputations	45	



A	AMPUTATION PANEL	I	FLOOR LOOM
B	BAND SAW	J	HAND LOOMS (2)
C	BENCH	K	LATHE
D	BICYCLE JIG SAW	L	TABLE
E	BRAID WEAVE FRAME	M	TOOL SHADOW BOARD
F	CABINET	N	TREADLE SANDER
G	DESK	O	SANDER
H	DRILL PRESS		

FLOOR PLAN
OCCUPATIONAL THERAPY
9940 TSU SGO

FEET
20 0 10 20

Fig. 39

C.

PHYSICAL RECONDITIONING

The physical reconditioning phase of the unit's program in physical medicine was under the immediate direction of Lt. Lillian Emrick and supervised by Captain Keys.

The physical plant consisted of separate outdoor play areas for basketball, volleyball and horseshoe pitching. An abandoned surgery building was converted into a gymnasium by removing all partitions, plumbing and ceilings. Fortunately, the entire floor of this building was made of concrete and adequately sloped for quick drainage, thus affording an excellent playing surface and good floor sanitation.

Activities in this part of the program consisted of calisthenics, volleyball, basketball, badminton, shuffleboard, boxing, table tennis, dart throwing, striking bag punching, horseshoe pitching, games and relays, and roller skating. Whenever possible these activities were conducted out of doors, but since the unit was in the Islands during the rainy season, this was not always feasible. The calisthenics were primarily designed for arm amputees and were mainly corrective in nature. These classes were usually conducted by an arm amputee who had been trained by Lt. Emrick. Patients entered into this activity quite as enthusiastically as they did into other phases of the program. Making this an integral part of their pre- and post-operative and -prostheses treatment apparently was the correct approach and produced excellent results. Of the outdoor activities, volleyball

Fig. 40. Volleyball: arm amputees vs. leg amputees.

Fig. 41. Volleyball: arm amputees vs. leg amputees. Leg amputees won the game.

Fig. 42. Volleyball: arm amputees.

Fig. 43. Volleyball: leg amputees.

seemed to be most popular with the amputees, and considerable rivalry developed between the arm and the leg amputees. Badminton was the most popular of the indoor game activities, closely followed by table tennis. The supply office of the unit was hard put at times to supply necessary replacements of equipment for these two games.

The game activities were entered into by all patients, both with and without prostheses. A regular class schedule was arranged to fit into the physical and occupational therapy programs and was closely coordinated with these two departments to safeguard the health of the patients. Facilities for showers were constructed in a building immediately adjacent to the gymnasium.

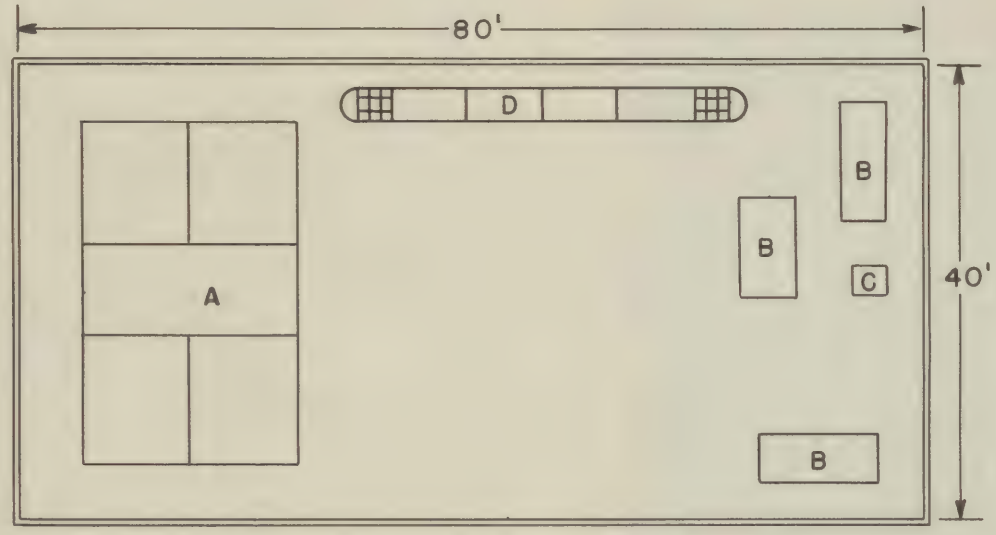
Equipment for sports and games for the program of physical reconditioning was procured from voluntary contributions from excess and unused supplies of neighboring organizations such as the 360th and 100th Station Hospitals, the American Red Cross, the Filipino nurses' quarters, the 19th Medical Laboratory, malaria control units, and others. Roller skates were loaned by a member of the 9940 TSU.

All of the Filipino nurses assigned to physical therapy were given instruction in this part of the program and were rotated as

leaders in the class work. One civilian nurse was also given thorough instruction and training in class procedures and game techniques.

Enthusiastic leadership and a thorough and sympathetic understanding of the amputee's problem in physically conditioning himself and overcoming his handicap are quite necessary for an adequate program.

Careful attention was given at all times to the safety precautions necessary for the health of patients while engaging in the various games and contests. Constant supervision by and the presence of an instructor at all contests prevented injury to the amputees.



A BADMINTON COURT
B PING-PONG TABLE
C PUNCHING BAG
D SHUFFLE BOARD

FLOOR PLAN
GYMNASIUM
9940 TSU - SGO

FEET
10 0 5 10

Fig. 44

PART V
ARTIFICIAL LIMBS

One of the immediate problems facing "Task Force, Peg Leg" upon arrival at the site of the inactivated 312th General Hospital was the preparation, for occupancy, of the buildings assigned to it. The limb shop was assigned what had formerly been the mess hall; the cast and machine shop - the butcher shop; supply - the medical supply building; physical therapy, training class and occupational therapy - ward buildings; and physical reconditioning - the surgery. All of the buildings needed thorough clearing and renovating. Undesired partitions were removed and entirely new electrical wiring was put in to provide both 110- and 220-volt current. The work of preparing the buildings was accomplished by organizing separate work parties for each building and assigning Japanese POW to each. In this way the clean-up details kept abreast and all of the buildings were ready for machinery and equipment at the same time.

As the machinery and supplies arrived from the depot they were sorted and taken to the appropriate building. All heavy equipment was set up and leveled on new concrete bases. Supplies were divided into two groups: (1) items to be put into dead storage for future use, and (2) items to be placed in the supply building for immediate and daily use. Later it was necessary to move the items of dead storage to another building because the floor of the first building caved in. (Buildings had been constructed on ground that at one time had been rice paddies.)

It was necessary to rebuild the boardwalks connecting the buildings in order to accommodate patients using crutches since the boards had been too widely spaced.

Fig. 45. Limb shop.

Fig. 46. Limb shop.

As soon as the technicians finished setting up that portion of the unit assigned to them, they drew their individual tools and initial supplies. Patients were called in from the wards and production of limbs began forthwith.

The aluminum leg was used for both above- and below-knee prostheses (as mentioned in the historical section of this report). Experience showed the wisdom of this choice. Some fibre limbs, as provided in the U. S. Army provisional prosthesis, were included in the items of supply, and these began to show the effects of the tropical climate while still on the shelves of the supply room. One fibre shin was used for a patient's prosthesis but was later replaced by a metal shin because it began to show corrugations. Arms were fabricated on the "Miracle" frame, and the "Miracle" hand and Dorrance hook were both issued to each arm amputee.

Some little difficulty arose in attempting to co-ordinate the techniques of various phases of production of limbs. It must be remembered that the technicians had been selected from six different amputation centers. Consequently it was necessary to work out a system which could be understood by all. The learning of new skills was not

involved—just rearrangement of techniques already learned and dissemination of common knowledge. After three or four group conferences, the assembly line proceeded quite smoothly.

Fitting of stumps was essentially the same as practiced in the amputation centers of the U. S. Army. For the above-knee stumps, individual measurements were taken and then an aluminum socket was fitted to the stump. This in turn was fitted into the above-knee set-up and the pelvic belt. In two cases additional shoulder straps were used because the patients had used commercially-made legs which provided shoulder straps. These were discarded, however, after two weeks of training in the class in walking. The original shipment of supplies which accompanied the personnel of the unit did not include hip-control joints; therefore it was found necessary, in order to give the above-knee amputees the earliest possible use of their limbs, to use a knee joint of a below-knee prosthesis. The modification of this joint and its use as a hip-control joint on the above-knee prosthesis were successfully carried out and the patient was not hampered in any way in his use of the artificial limb. These hip-control joints were all replaced later by the standard joint. For fitting below-knee

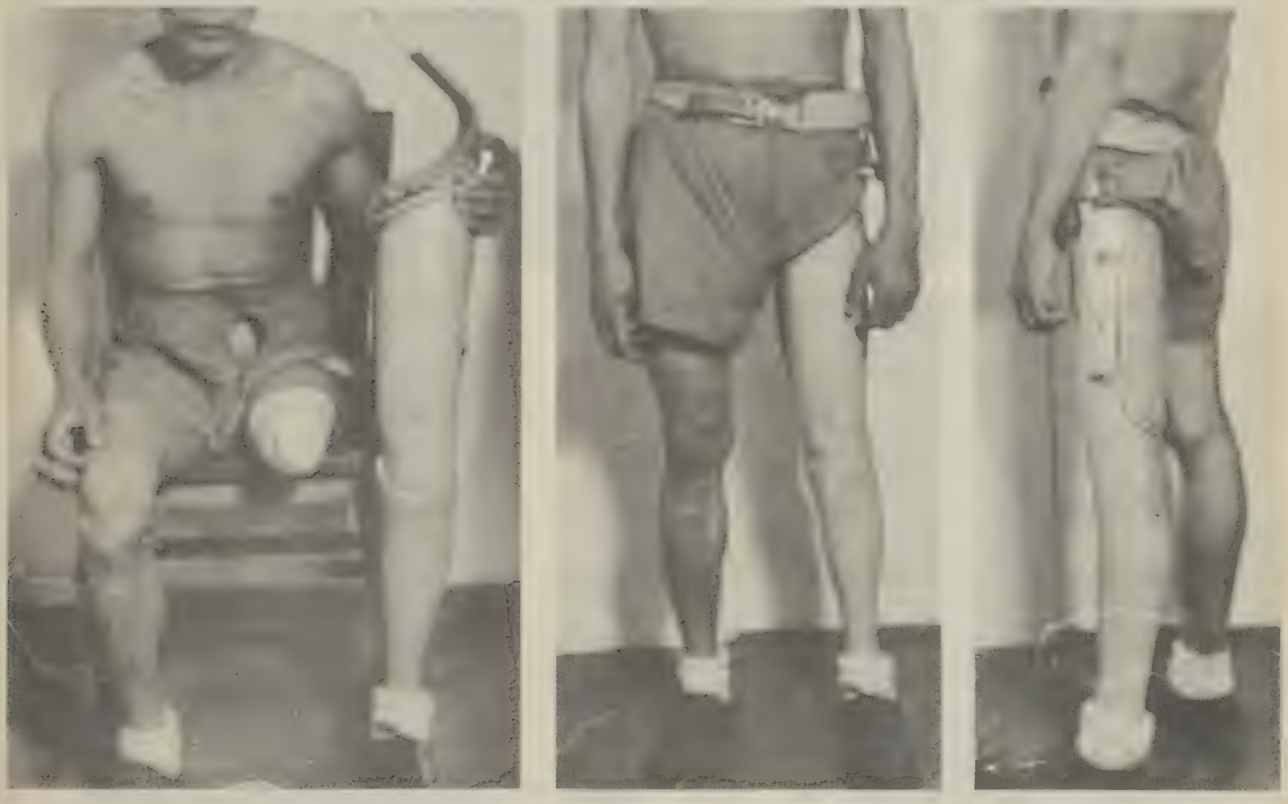


Fig. 47. Above-knee prosthesis.

stumps, plaster casts were taken and a positive impression made from the plaster-bandage negative. A molded leather socket was formed on the positive

Fig.48. Above-knee prosthesis.

impression and this was fitted into a metal shin. It was originally intended to form these sockets from plastic materials, but since the plastics did not arrive in the Philippines it was necessary to make the leather socket. Fortunately, such a contingency had been foreseen and sufficient leather was on hand. The thigh corset was used on all below-knee amputations. It was found by experimentation that its size could be materially reduced as compared to patterns used in the United States. Feet were constructed with a felt sole along the whole bottom of the foot. Some original suction sockets for below-knee stumps were observed that had been made by the natives themselves (see Fig. 53). Temporary pylons were not used at any time.

Fig. 49. Below-knee prosthesis.

Fortunately (for instruction purposes), almost every type of leg prosthesis was made—Symes, ankle-disarticulation, regular below-knee, knee-bearing, end-bearing, bent-knee, regular above- knee and tilt-table.

Fig. 50 Prosthesis for ankle disarticulation.

The unit built a new type of prosthesis for ankle disarticulations. It was an experiment in the beginning because a patient with an ankle disarticulation refused further surgery. His stump was in excellent condition. He had been walking on it for some time with a prosthesis of his own making which consisted of a high-top shoe with a stuffed toe and a heel padded with cotton. The patient simply put his stump into the shoe and walked. In construction of the prosthesis a cast of the stump from the ankle to the knee joint was made, leather was molded around the cast, and this socket

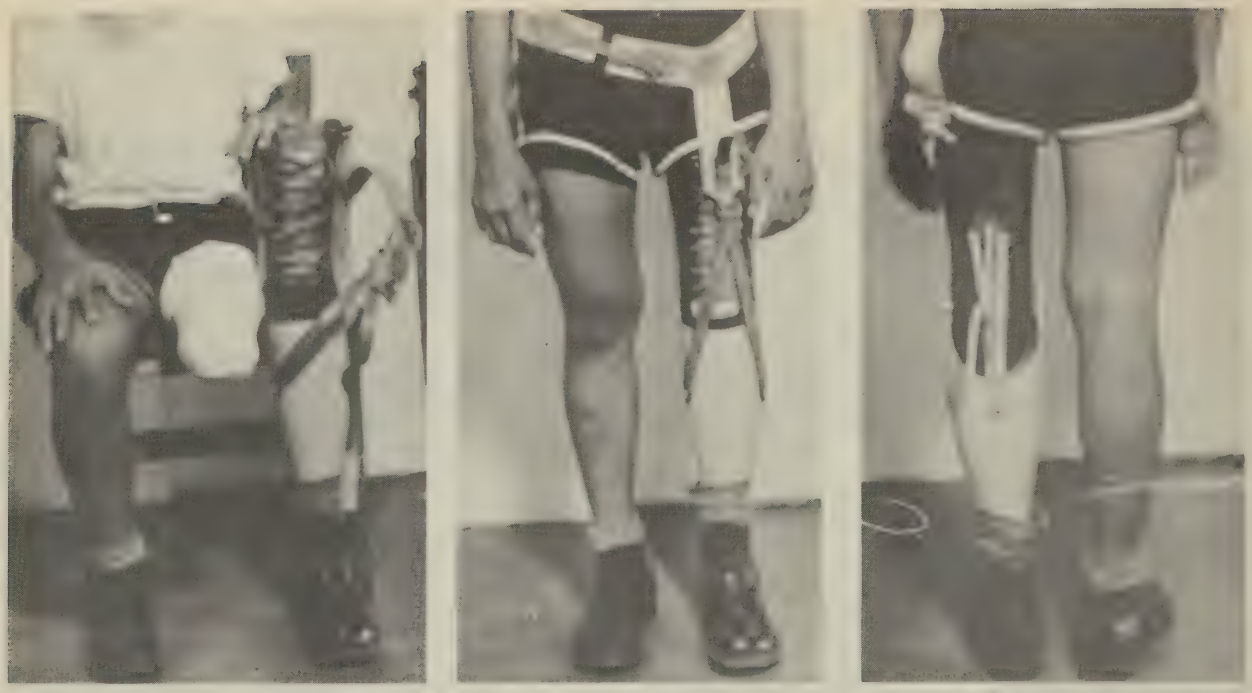


Fig. 51. Knee-bearing prosthesis.

was slit from just above the flare of the ankle to mid-leg so that the patient could get the flare of the stump through the small part of the socket. The socket, at the knee, was molded to fit the contour of the leg just as in a below-knee stump. The socket was placed in a below-knee shin—minus the knee joint—and a belt was placed around the patient's waist with an extension strap fastened to the leg part. The patient bore weight partially at the end of his stump but mostly around the knee. This type of prosthesis worked so well that a similar one was made for another patient with an ankle disarticulation (see Fig. 50).

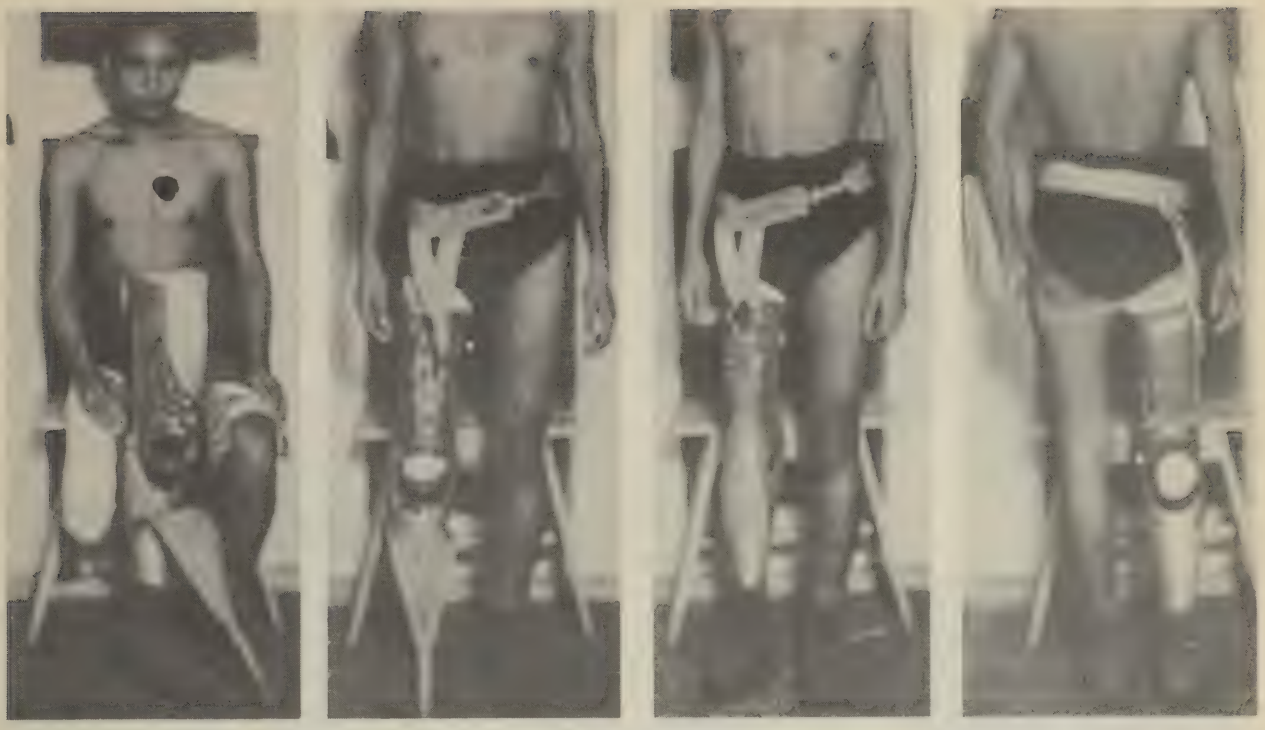
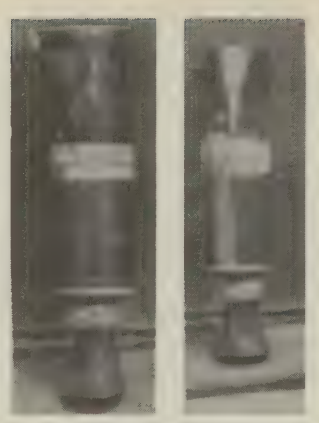


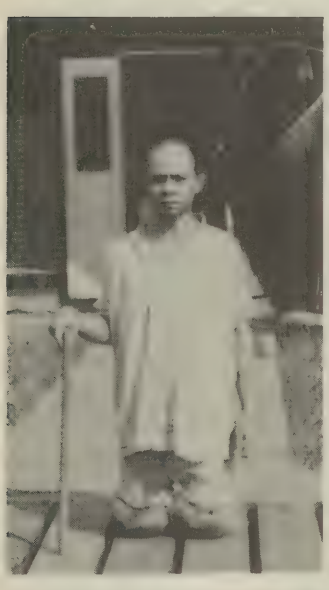
Fig. 52. Bent-knee prosthesis.

When the lower-extremity amputees arrived at the center most of them came with crutches. A small per cent, however, walked on prostheses of their own making which in most cases were extremely crude but nevertheless ingenious. One patient with an ankle disarticulation had further hollowed out a piece of bamboo, into which he placed his stump. He placed the other end of the bamboo into his high-top shoe. Another cut off the top of a beer can, put his stump in it, and nailed a piece of wood with a rubber crutch-tip on the bottom of the can. Routinely all such homemade prostheses were taken from the patients. This was a little difficult with the patient with the beer-can prosthesis, because as fast as his prosthesis was taken from him he would build a new one. A bilateral below-knee amputee put pads on his stumps and walked on his knees. Another bilateral below-knee amputee wore legs which, crudely speaking, looked very much like our below-knee prostheses. They were made of wood, hollowed out. The amputee had made crude hinges for the knee joint and fastened the hinges at the bottom to the hollowed wooden legs and at the top to combat-boot tops, which he



← Fig.53. Prosthesis made of beer cans.

laced around his thighs. Another below-knee amputee used a piece of rainspout as a shin-piece with a combat-boot top as a thigh corset. Another went to the extent of carving the toes and toenails on the wooden foot of his homemade leg. These prostheses were extremely heavy but the patient had a sense of independence and was quite proud of his workmanship. In the group there was just one peg-leg prosthesis.



↗ Fig.54. Bilateral below-knee amputee wearing improvised prostheses.

Fig.55. ↑ Below-knee amputee wearing improvised prosthesis.

← Fig.56. Types of native prostheses.

Below-elbow arms were made on the "Miracle" frame after casts were made of the stump, and they varied little from those made in the U. S. A shoulder harness and Northrop cable are used to activate the hook or hand. There were no bilateral arm amputees. Parts for above-elbow prostheses failed to arrive in Manila in time to allow any appreciable number of them to be made. However, casts and sockets were made and would have been ready at any time if the set-ups had arrived. In order to complete the cycle of instruction for arm amputees the unit made four above-elbow prostheses by tearing down four samples it had brought from the States. These samples were reassembled, fitted and adjusted to four above-elbow patients. This afforded other

Fig.57. Below-elbow prosthesis.

Philippine trainees ample opportunity for observation in all phases of treatment of the above-elbow patients. (In other sections of this report a total of three prostheses of this type is mentioned; the fourth was made later.)

Until 30 September 1946, the unit substituted stockinette for stump socks. The stockinette worked amazingly well, but after the patients received their issue of stump socks they would not go back to stockinette.

At the time of discharge each amputee was given replacement parts for his prosthesis. Below-knee amputees were given an extra fork strap and an extra pelvic belt; above-knee amputees, an extra belt; below- and above-elbow amputees, a harness and cable; and all amputees, extra stump socks.

The unit made some prostheses for partial hands. In most cases these prostheses were purely cosmetic in nature; however, a patient with amputation of the distal and medial phalanges of the index finger on the right hand received a functional prosthesis and was able to resume employment as a typist.

Fig. 58. Partial-hand prosthesis.

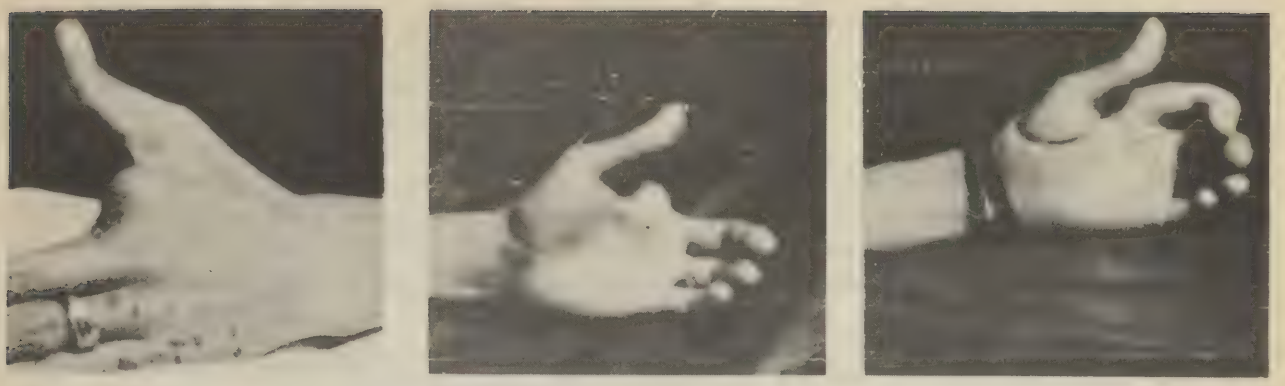


Fig.59. Partial-hand prosthesis.

Fig. 61. Long leg brace.

Fig. 60. Knee brace.

Braces were also produced by the unit for those patients specified by the Victoriana Luna General Hospital. Considerable work in this field can be done in the Philippines. The cases selected enabled personnel of the unit to instruct Philippine personnel in brace-making techniques.

Since all personnel of the unit had been closely associated with the programs for amputees in the U. S., they were in an ideal position to see and be impressed by the differences in attitudes and behavior between Philippine and American amputees. The ease and facility with which the Filipinos learned to use their prostheses were impressive. Their optimism and ingenuity in regard to their improvised prostheses were characteristically prevalent. The Filipinos were not deformity-conscious; on the contrary, they were quite proud of their artificial limbs and their ability to use them to their fullest possibilities. They attempted

without question every instruction given. Their disregard for self and their eagerness to complete training and be discharged with their prostheses was in some cases to their own detriment—as, for example, not reporting abrasions or sore spots caused by maladjustment or by too much activity. Attendance at appointments was never a problem and the Filipinos were always disappointed when classes had to be omitted because of failure of utilities. They were always willing to put in extra appearances for lectures and demonstrations, even when some days it meant waiting hours for the inspecting parties to arrive.

Their collective attitude of "When do I get my leg?" and "How soon can I be discharged?" aided and encouraged the 9940 TSU-SGO to get the job done in the shortest possible time.

In the final capitulation of services given to Philippine Scouts and Philippine Army amputees it will be seen that a total of 206 patients were admitted. Of this number 122 were leg amputees and 84 were arm amputees. The unit fitted 72 per cent of the leg amputees and 36 per cent of the arm amputees who were patients. The low percentage of arm amputees fitted can be accounted for by the large percentage of above-elbow cases and the fact that prostheses for this group were not available among the supplies of the unit. Approximately 30 per cent of the total number of amputees admitted for treatment had been given maximum hospitalization and discharged before the unit left the theater.

REPORT OF AMPUTEES ADMITTED TO ORTHOPEDIC BRACE SHOP
FROM 20 MAY TO 31 OCTOBER 1946
(Philippine Scouts & PA)

I. Total Admission

A. Legs:

a. Above Knee
Rt.....40
Lt.....31
71

b. Below Knee
Rt.....22
Lt.....17
39

c. Disarticulation.. 9

d. Bilateral..... 3

TOTAL 122

B. Arms:

a. Above Elbow
Rt.....22
Lt.....28
50

b. Below Elbow
Rt.....14
Lt.....14
28

c. Disarticulation
Index finger..... 2
Shoulder..... 3
Hand..... 1
6

TOTAL 84

II. Number of Amputees Fitted

A. Legs:

a. Above Knee
Rt.....24
Lt.....21
45

b. Below Knee
Rt.....17
Lt.....15
32

c. Disarticulation
Rt (knee)..... 3
Lt (knee)..... 6
9

d. Bilateral 2

TOTAL 88

B. Arms:

a. Above Elbow
Rt..... 3
Lt..... 1
4

b. Below Elbow
Rt.....10
Lt.....13
23

c. Disarticulation
Rt (index finger) 3
Lt..... 0
3

TOTAL 30

III. Number of Amputees Discharged

A. Legs:

a. Above Knee
Rt..... 9
Lt..... 7
16

b. Below Knee
Rt..... 8
Lt..... 9
17

c. Disarticulation
Rt..... 0
Lt (knee)..... 3

TOTAL 36

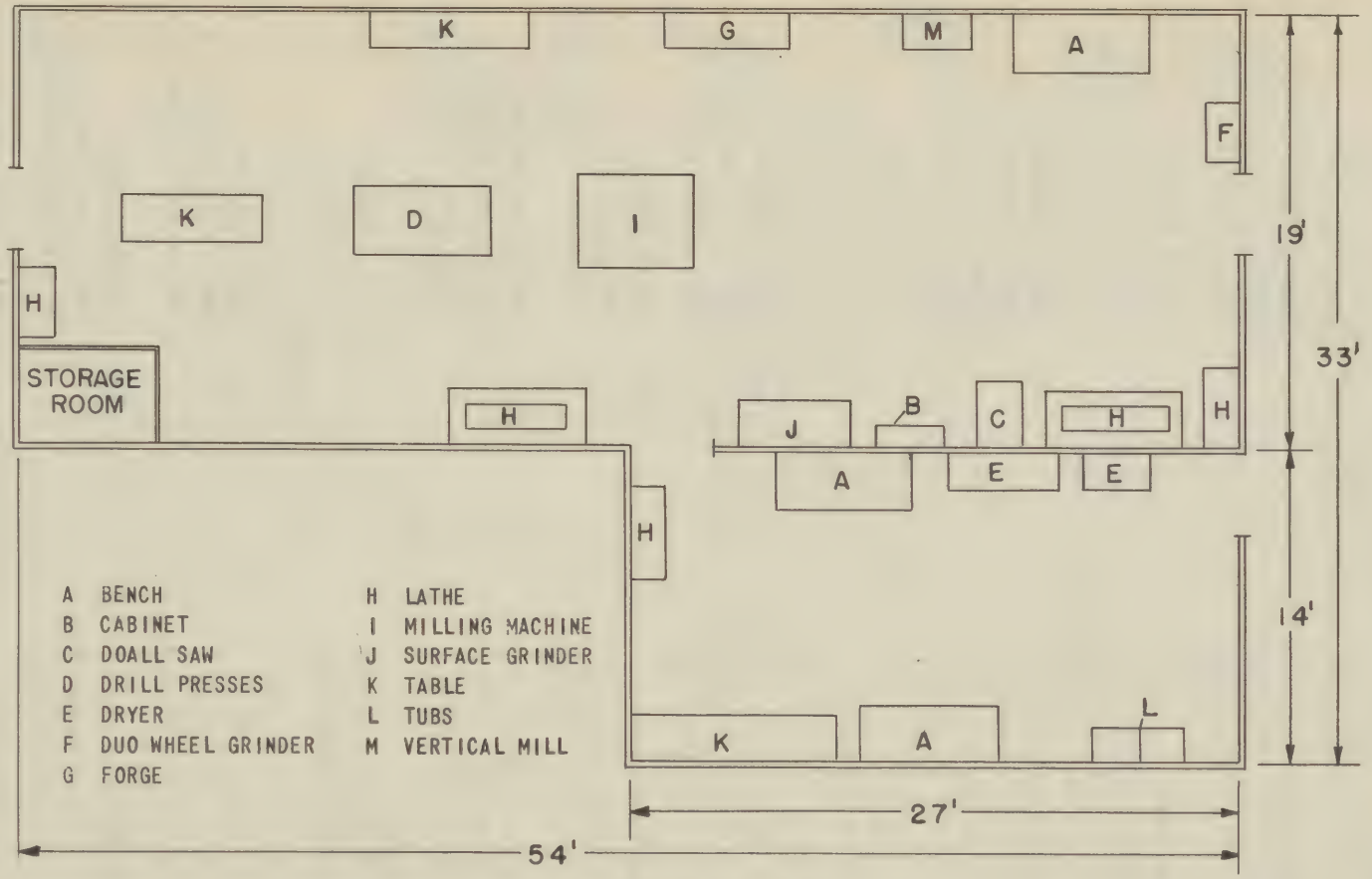
B. Arms:

a. Above Elbow
Rt..... 3
Lt..... 1
4

b. Below Elbow
Rt.....10
Lt.....10
20

c. Disarticulation
Index finger..... 2
Shoulder..... 0
Hand..... 0
2

TOTAL 26



FLOOR PLAN

MACHINE SHOP - CAST ROOM, 9940 TSU - SGO

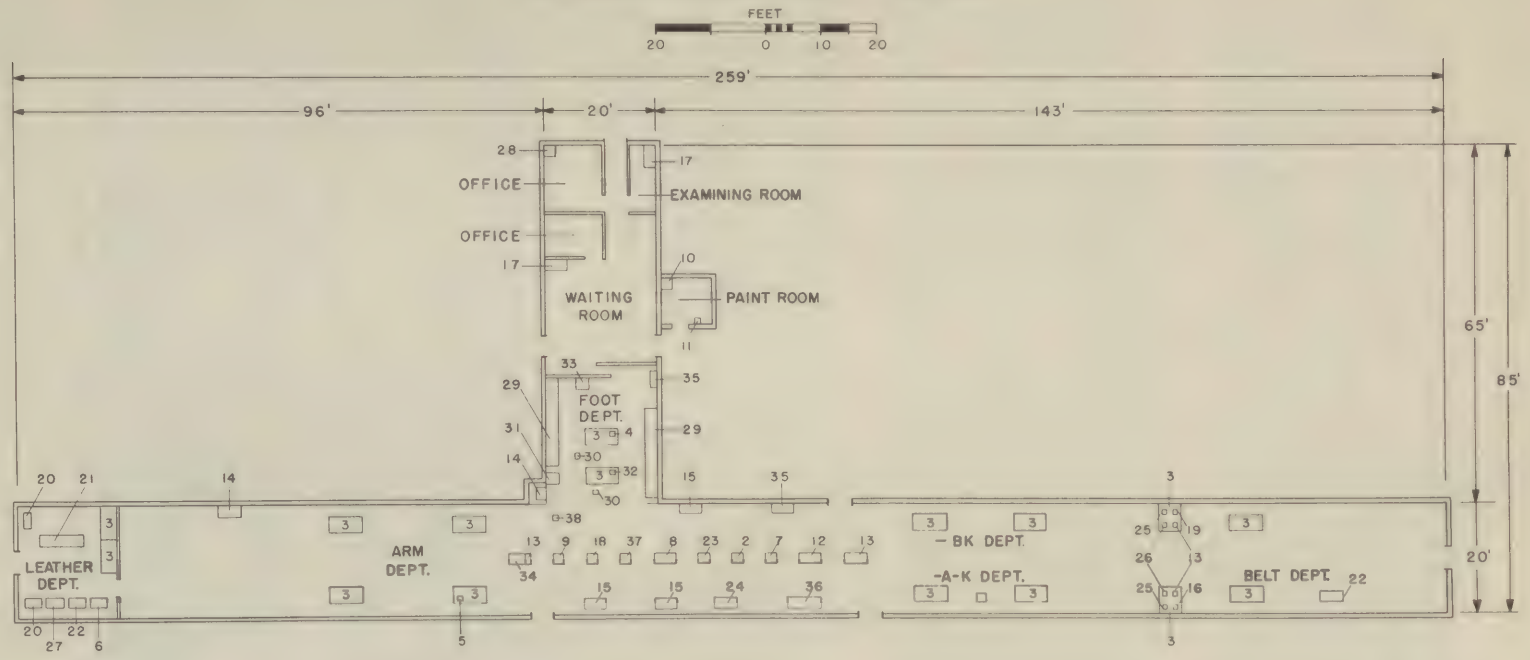
FEET

10 0 5 10

Fig 62

FLOOR PLAN

ORTHOPEDIC SHOP, 9940 TSU-SGO



1 ARM ANVIL
2 BELT SANDER
3 BENCH
4 BENCH DRILL
5 BENCH DRILLING MACHINE
6 CLOTH SEWING MACHINE
7 COMB CONE DRUM SANDER
8 COMB, FACE, CONE AND DRUM SANDER
9 COMBINATION CONE AND DRUM SANDER
10 COMPRESSOR
11 COMPRESSOR GAGE
12 CONE SANDER
13 DRILL PRESS
14 DRYER
15 DUO WHEEL GRINDER (LG)
16 DUO WHEEL GRINDER (SM)
17 EXAMINING TABLE
18 FACE SANDER
19 FLEXIBLE SHAFT GRINDER
20 HEAVY LEATHER SEWING MACHINE
21 LEATHER CUTTING TABLE
22 LIGHT LEATHER SEWING MACHINE
23 METAL BAND SAW
24 METAL CUTTER
25 METAL ROLLER
26 METAL STRETCHER
27 PATCHING SEWING MACHINE
28 SAFE
29 SHOE FINISHER
30 SHOE LAST
31 SHOE SEWING MACHINE
32 SHOE SOLE CUTTING
33 SHOE STITCHER
34 SLIP ROLL FORMER
35 TUBS
36 WELDING TABLE
37 WOOD BAND SAW
38 WOOD AND METAL DRILL PRESS

Fig. 63

PART VI
ADMINISTRATION

A. 1.
Personnel - U.S. Army

On 22 March 1946 The Surgeon General's Office authorized the personnel for the Amputation and Prosthetic Team-Philippine Islands and designated it as the 9940 Technical Service Unit of The Surgeon General's Office. This unit was assigned to the Brooke Army Medical Center, Fort Sam Houston, Texas, for administration only and was under the supervision of the Army Medical Research and Development Board, Surgeon General's Office.

Prior to that date Captain Keys of McCloskey General Hospital and Captain Brown of Bushnell General Hospital had made a tour of the remaining amputation centers, had interviewed all of the enlisted men volunteering for this overseas assignment, and had selected the following 16 technicians:

REGULAR ARMY

Sergeant

Younger, Don P., 39754594, DMD - SCU 1977--Bushnell General Hospital

Technicians Fourth Grade

Bailey, Gilbert W., 12037523, DMD - SCU 1272--Thomas M. England GH
Gottman, Harry R., 36924916, DMD - SCU 3610--Percy Jones General Hospital
Nordstrom, Herbert C., 36451991, DMD - SCU 3610--Percy Jones GH
Slough, Philip N., 3397946, DMD - SCU 1413--Lawson General Hospital

Technicians Fifth Grade

Polony, William R., 46034835, DMD - SCU 3610--Percy Jones GH
Sterling, Royce L., 12082013, DMD - SCU 1272--Thomas M. England GH

OTHER COMPONENTS

Technical Sergeant

Allen, Charles R., 19159378, DMD - SCU 1385--McGuire General Hospital

Sergeant

Landis, John C., 37526605, DMD - SCU 1385--McGuire General Hospital

Technicians Fourth Grade

Myers, Earl F., 44158910, DMD - SCU 1272--Thomas M. England GH
Pierce, Edwin R., 44104529, DMD - SCU 1272--Thomas M. England GH
Rosser, Jefferson D., 44075377, DMD - SCU 1884--McCloskey GH

Corporals

Brown, Harris V., 33980187, DMD - SCU 1884--McCloskey GH
House, George R., 44134609, DMD - SCU 1385--McGuire GH

Private First Class

Adcock, Clyde W., 38789544, DMD - SCU 9901--Walter Reed GH
Grau, Derwin C., 38774235, DMD - SCU 3610--Percy Jones GH

A request was made of the Physical Therapy Department, SGO, for one physical therapist. 1st Lt. Carol Stange of McGuire General Hospital was selected.

When the Occupational Therapy Section, SGO, was requested to provide two occupational therapists, Miss Elizabeth Nachod, England General Hospital, and Miss Mary K. Berteling, Welch Convalescent Hospital, were selected.

1st Lt. Roger Noden, a below-knee amputee from England General Hospital, volunteered to accompany the team as an instructor in walking for training of amputees, and, after consultation with Colonel Leonard T. Peterson, SGO, permission was granted to include him in the TO of the unit.

After the unit was set up and functioning in Mandaluyong, P.I., it was decided to incorporate physical reconditioning as a necessary phase of its treatment of patients. 1st Lt. Lillian F. Emrick, physical therapist at the 360th Station Hospital, Mandaluyong, volunteered her services as an addition to her regular duties. The necessary arrangements were made with the 360th Station Hospital through Medical Service, Philippine Base Service Command, and Lt. Emrick was added to the personnel of the unit as an assistant to Lt. Stange in physical therapy and as officer in charge of physical reconditioning.

Fig. 64. Personnel of the unit. Left to right, front row: T/4 Rosser, T/4 Gottman, T/5 Polony, PFC Grau, T/Sgt Allen, Corp. House, PFC Adcock; second row: Sgt Younger, Capt. Keys, Lt. Emrick, Lt. Stange, Miss Nachod, Miss Berteling, T/4 Nordstrom, Capt. Brown; third row: T/4 Bailey, T/5 Sterling, Sgt Landis, T/4 Slough, T/4 Pierce, T/4 Myers, Corp. Brown.

From about 1 April 1946 to 10 April 1946 the officers and enlisted men were assigned to the San Francisco Medical Depot for the purpose of checking pre-shipment of supplies and equipment. Upon completion of duty at SFMD the unit was sent to Camp Stoneman for overseas processing. On 18 April the unit, without Lt. Stange, sailed for Manila aboard the SS Cape Newenham. A major breakdown forced the ship to return to San Francisco for repairs; the final departure took place Easter Sunday, 21 April 1946. Lt. Stange was transferred to Seattle for passage on a vessel with accommodations for women.

The Newenham arrived at Manila on 11 May 1946. The enlisted men were dispatched to the 5th Replacement Depot and the officers were sent to the Paranaque Replacement and Disposition Center for processing. The master of the Newenham refused Capt. Keys' request for permission to radio AFWESPAC the approximate time of arrival of the 9940 TSU-SGO, and information of the arrival of this specific unit had not been very widely disseminated. As a consequence, enlisted men and officers were treated as replacements at the two reception centers. (How to dispose of an officer who was an amputee caused considerable speculation.) The two replacement centers were about 10 miles apart, that for officers being closer to Manila and AFWESPAC Headquarters. This enabled the officers to straighten the situation out as far as they were concerned, but the plight of the enlisted men was quite different. Before they could get in touch with Captain Keys, and he in turn could visit the 5th Replacement Depot Headquarters, the enlisted men were assigned as replacements to the 86th Division. The error was rectified, however, before the men left the Replacement Depot.

The unit was attached to the 360th Station Hospital for rations and quarters. About one month after arrival at the hospital, the enlisted men were ordered to vacate their quarters to make room for a group of permanently assigned men. Quarters were then set up at the site of the limb shop, which proved to be a much more satisfactory arrangement since the men would be at the site of the unit at all times. Meals were still taken at the 360th Station Hospital by transporting the men back and forth in weapons carriers.

Investigation of the order to move uncovered another error. The order stated that the "prosthetic team" would move; this referred, however, to a team of dental technicians who had been alerted previously.

On 17 May 1946, Lt. Stange, physical therapist, arrived in Manila aboard the USAT Marine Jumper and took up residence in the nurses' quarters at the 360th Station Hospital. On 29 June 1946 the Misses

Berteling and Nachod, occupational therapists, arrived in Manila aboard the USAT Republic. They, too, were housed at the nurses' quarters of the 360th Station Hospital.

Discipline and morale among the enlisted men were quite exemplary at all times and at no time was it necessary to do anything more than reprimand a man for misconduct. The delinquency reports were few and consisted largely of breach of uniform regulations off the post, such as having shirtsleeves rolled while in downtown Manila. There were three instances in which the military police called for summary court-martial. In one of these the soldiers involved were acquitted of the charge of operating a vehicle in excess of the speed limit, in another the case was dismissed with the comment that it should never have been brought to trial, and in the third the defendants were assessed a fine. All three cases involved excess speeds of vehicles, two of which occurred while the men were on duty and the third while engaged in recreation.

The quarters of the enlisted men at the site of the unit were excellent. Daily inspections were made and special inspections were made each Saturday by the Commanding Officer and the Unit Surgeon. Recreational facilities were provided by the gymnasium and the Enlisted Men's Club, which was set up in one of the buildings at the site of the unit. Trucks were provided each evening to take personnel to motion pictures or dances, and available vehicles were released for other recreational purposes. Quite cordial relationships were established between the personnel of the unit and the Filipino personnel and patients which provided many opportunities for the American personnel to visit homes and villages in and around Manila.

During the entire stay of the enlisted men in the Islands not one day was lost due to illness or injury. In no case was it necessary to use the sick book. However, the amputee instructor, Lt. Noden, was returned to the United States by air on 22 August 1946 due to an aggravated condition of his stump.

After being duly processed and quartered, the unit began its task of "setting-up" the buildings. With the help of a group of Japanese POW, the buildings were cleaned, repaired and revised preparatory to receiving supplies and equipment. A master plan was worked out for setting up the machinery in order that it would be convenient to all workers.

The enlisted personnel of the unit were assigned duties as follows:

T/Sgt Allen - above-knee--Senior NCO
T/4 Rosser - above-knee--Sgt of the Guard
T/4 Gottman - above-knee--Braces

T/4 Slough	- above-knee
T/4 Bailey	- below-elbow--Provost Sergeant
Sgt Landis	- above-elbow--Vehicle Maintenance
T/4 Nordstrom	- below-knee
Corp. House	- below-knee--Supervisor, POW
T/4 Myers	- machinist--Vehicle Maintenance
Sgt Younger	- casting--Photographer
T/4 Pierce	- casting
Corp. Brown	- leather and sewing--Supports
T/5 Sterling	- supply
T/5 Polony	- supply--Braces
PFC Grau	- foot--Shoe Repair
PFC Adcock	- foot

All enlisted men were carried on the guard roster since it was necessary to maintain a 24-hour guard.

Each of the enlisted men acted as an instructor and was made responsible for the training of the Filipino assigned to him as assistant and pupil.

The personnel of the unit were actively engaged in the making of prostheses at the same time they were instructing and supervising the construction of prostheses by the Filipinos. This arrangement continued until 1 October 1946, at which time the Philippine Army personnel were allowed to take over completely. Gradual relinquishing of responsibility was the active policy up to 1 October.

On 17 October 1946 the 16 enlisted men were transferred to the 5th Replacement Depot for processing and return to Brooke Army Medical Center, Fort Sam Houston, Texas. Captain Brown was transferred to Paranaque Replacement and Disposition Center on 18 October for processing and return to the SGO, Washington, D.C. This group sailed from Manila aboard the Admiral Hughes on 21 October. Lt. Stange was transferred to the Fourth General Hospital, P.I., on 28 October. Lt. Emrick was transferred to Paranaque R&D Depot on 25 October and left for Camp Beale, California, by ATC on 1 November. Miss Nachod sailed from Manila 9 November. Captain Keys was transferred to Paranaque R&D Depot on 9 November and sailed from Manila aboard the USAT Sea Devil on 13 November. Miss Berteling sailed from Manila aboard the USAT Admiral Eberle on 28 November.

Final disposition of the 9940 TSU-SGO personnel has been made as follows:

Captain John J. Keys - Research and Development Board, SGO, D.C.
Captain Edward S. Brown - Discharged.
1st Lt. Carol Stange - 4th General Hospital, Manila, P.I.
1st Lt. Lillian F. Emrick - Discharged.
Miss Mary Berteling - Walter Reed General Hospital, D.C.
Miss Betty Nachod - Brooke Army Medical Center

Sgt Younger - Brooke General Hospital
T/4 Bailey - Brooke General Hospital
T/4 Gottman - Percy Jones General Hospital
T/4 Nordstrom-Percy Jones General Hospital
T/4 Slough - Percy Jones General Hospital
T/5 Polony - Percy Jones General Hospital
T/5 Sterling - Discharged
T/Sgt Allen - Discharged
Sgt Landis - Discharged
T/4 Myers - Discharged
T/4 Pierce - Discharged
T/4 Rosser - Discharged
Cpl Brown - Discharged
Cpl House - Discharged
Pfc Adcock - Discharged
Pfc Grau - Discharged

Fig. 65. T/Sgt Allen fitting metal socket to patient with short above-knee stump.

Fig.66. T/4 Rosser fitting above-knee prosthesis.

Fig. 67. T/4 Gottman adjusting above-knee prosthesis.

Fig.68. T/4 Slough adjusting above-knee prosthesis.

Fig.69. Corpl. House fitting below-knee prosthesis.

Fig. 70. T/4 Nordstrom checking fit of below-knee prosthesis.

A. 2.

Personnel - Filipino

The training of Filipino personnel in the complete care of the amputee began almost immediately after arrival of the unit. As noted in that section of this report dealing with physical therapy, it will be seen that instruction began within two weeks after arrival and before actual facilities were prepared at the site of the buildings of the unit.

It became quite evident soon after arrival of the unit in the Philippines that there were two schools of thought as to just what group should operate the unit after the U. S. Army team relinquished control. One group leaned heavily toward complete control by Philippine Army Medical Corps personnel. Another group favored operation by civilian personnel under the direct supervision of the Department of Public Health and Welfare. For this reason it was decided to train three groups, as follows: (1) Philippine Army Medical Corps; (2) civilians from the Department of Public Instruction and (3) civilians from the Emergency and Orthopedic Hospital, Mandaluyong, P. I.

The Philippine Army Medical Corps personnel furnished the most complete staff for instruction. Enlisted men attached to the 9940 TSU-SGO for training were: one master sergeant, three technical sergeants, three staff sergeants, six sergeants, one corporal and six privates. These enlisted men arrived at the unit as follows: three on 18 May 1946, one on 29 June, one on 5 July, six on 15 July, one on 19 August, and six on 20 August.

Of this group, 13 had been trained at amputation centers of the U.S. Army in the United States (Thomas England General Hospital, McGuire General Hospital, and Bushnell General Hospital). For purpose of record, their names and training are listed:

T/Sgt	Macario R. Ramos	- Arms
T/Sgt	Dominador Feliciano	- Arms and braces
T/Sgt	Carlos Bermudez	- Arms
S/Sgt	Fermin Delizo	- Above-knee legs
S/Sgt	Jose N. Corpuz	- Machine shop, braces
Sgt	Apoleo Bachini	- Above-knee legs
Sgt	Eleuterio Reyes	- Leather and sewing
Sgt	Soliman Legaspi	- Shoe and foot department
Sgt	Florencio Peji	- Arms
Sgt	Felipe Ramos	- Below-knee legs
Sgt	Hermogenes Espanol	- Below-knee legs
Cpl	Serafin S. Cabayan	- Casting
S/Sgt	Canuto Limoso	- Supply

The commissioned personnel of the Philippine Army assigned to the 9940 TSU-SGO were: Captain Ildefonso Gomez, MC (PA), trained at McGuire General Hospital in pre-prosthetic care of the amputee, who has had intensive training in amputation surgery, pre- and postoperative care of the amputee and who understands the basic fundamentals of fitting prostheses. Captain Augusto Argosino, MC (PA), who assisted at most of the operations done on the amputees and who also operated under the supervision of Captain Brown. Captain Argosino understands the basic surgical principles involved in the care of the amputee and has been responsible for the ward care of the amputees. He has had no training in the fitting of prostheses. Captain Francisco Lim, MC (PA), who was assigned entirely to ward work. He was responsible for the patients' records. He assisted at operations but is not capable of doing amputation surgery by himself. He knows nothing about fitting prostheses. 1st Lt. Virgilio Ramos, MC (PA), former associate professor of surgery, University of Philippines Medical School, who was thoroughly trained in amputation surgery, pre- and post-prosthetic care, physiotherapy, and the fitting of prostheses at Bushnell General Hospital. He is a first-class surgeon with extensive experience in both orthopedic and general surgery. 2nd Lt. Emilio E. Alcoseba, MAC (PA), who received training in supply and administration at Bushnell General Hospital. While there he was a master sergeant and did exemplary work in the prostheses supply section. Upon his return to Manila he was commissioned in the Philippine Army and assigned to the 9940 TSU-SGO for further training as the administrative officer.

The Philippine Army assigned five nurses to the unit for training: Captain Masilang, Lt. Aglugub, Lt. Castro, and Lt. Maniquis were assigned to physical therapy and physical reconditioning, and Lt. Diaz was assigned to occupational therapy.

The training received by Philippine Army personnel while attached to U.S. Army amputation centers proved invaluable and shortened considerably the time necessary to complete on-the-job instruction when they returned to the Philippines. Since training was received at three different hospitals in the States and by three different groups of men, it became necessary to standardize and coordinate very closely all instruction and techniques. This same problem had to be surmounted by the American personnel to an even greater degree because the 16 enlisted technicians had been selected from six different amputation centers.

The Philippine Army personnel were given complete charge of the functioning of the unit on 1 October 1946. This included all phases of the program with the exception of one instance in which a U.S. Army technician's help was needed to complete a prosthesis he had started. During the first few days it was necessary to supervise continually; but as the Filipinos came to realize that they were now on their own

resources and would have to make decisions and stick to them, American help became less and less necessary. The U.S. Army personnel of the 9940 TSU-SGO were unanimous in the opinion that the Philippine Army personnel were competent and ready to operate the unit completely and efficiently.

The civilian group of Filipino trainees was largely composed of members of the staff of the Emergency and Orthopedic Hospital, Mandaluyong, P. I. They received training as follows:

Alfredo Savellano	-	Physical therapy and physical reconditioning
Miss Lily Casuyon	-	Physical reconditioning
Miss Gliceria Andaya	-	Occupational therapy
Manuel Sarmenta	-	Supply
Constantino Galinda	-	Cast section
Napoleon Tabuyo	-	Foot section
Ramon Pineda	-	Foot section
Dionisio Baguio	-	Machine shop
Benjamin Leaño	-	Above-knee section
Salvador Soldevilla	-	Below-knee section
Santos Bayugo	-	Below-elbow section
Federico Abriña	-	Above-elbow and leather and sewing section

These Filipinos were a select group and proved to be exceedingly adept and skilful in learning and using the techniques necessary in limb production. Natural facility in the use of hand tools seemed to facilitate and shorten the learning process. As with Philippine Army personnel, these individuals learned to do by doing, since they were permitted to engage in actual production in the process of making limbs for patients. Some rotation of personnel was made in the various sections of the unit in order that each trainee might gain an overall picture of the program.

There is no doubt that any one of these technicians could be used by the Philippine Republic in its civilian and Army amputee rehabilitation program.

Dr. Santos, Chief Surgeon and Superintendent of the Emergency and Orthopedic Hospital, was untiring in his efforts to see that the 9940th TSU was publicized in the Manila area. He arranged many contacts with officials and influential businessmen in Manila that aided the work of the unit immeasurably.

Through the efforts of Dr. Villarama, Secretary of Public Health and Welfare, Philippine Republic, five Filipinos from the Department of Public Instruction were assigned to the unit for training. These

men were primarily interested in the skills necessary to operate and manipulate the various tools and machines necessarily used in artificial limb production. Complete rotation from section to section was scheduled in order that these men could go back to the technical and trade schools and act as instructors to future limb makers.

Fig. 71. Philippine Army staff.

Fig. 72. Philippine Army personnel who received training in U.S. Army General Hospital amputation centers.

Fig. 73. Filipino civilian trainees from the staff of the Emergency and Orthopedic Hospital.

Fig. 74. Filipino civilian trainees from the Department of Public Instruction, Philippine Republic.

B.

EQUIPMENT AND SUPPLIES

Collecting equipment and supplies, shipping them to Manila, and regaining possession of them after arrival in the Philippines proved to be a major portion of the program of the unit.

On 14 February 1946, Captain Keys and 1st Lt. Thompson, who at that time had been chosen to be surgeon of the Philippine unit, proceeded to McGuire General Hospital for the purpose of interviewing volunteers and checking supplies and equipment necessary for the production of the aluminum leg. While there they made a complete check of all equipment and supplies in order that these might be utilized in compiling the list necessary for overseas shipment. Captain Keys and Captain Brown, who replaced Lt. Thompson, made similar trips to Percy Jones General Hospital, Walter Reed General Hospital, and Thomas England General Hospital. On the return trip from England General Hospital a stopover was made in Philadelphia to visit the C.H. Davies Company, manufacturers of the aluminum leg used at McGuire General Hospital. A complete tour of the factory was made by these officers in order to gain a comprehensive picture of the techniques used in the production of metal legs.

Upon return to the SGO the officers compiled a complete list of necessary equipment and supplies. Consultations were held with the Overseas Branch of the Supply Section, SGO, and requisitions were submitted to the proper services. A number of requisitions were returned with the statement that items listed were "available in the theater." Instructions were given to the various services to ship all items to the San Francisco Medical Depot.

The depot in San Francisco received the items and assembled and prepared them for overseas shipment. Items broken or damaged in shipment were replaced by the SFMD. Personnel of the unit were stationed at the SFMD and assisted in checking receipt of requisitioned items.

Considerable care was taken to assure that the equipment and supplies would be shipped overseas on the same vessel as the personnel. Not all of the items requisitioned could be assembled in San Francisco in time to meet the shipping deadline, but since the greater portion was ready for shipment it was decided to take those and have the remainder of the shipment follow.

The cargo was unloaded immediately upon arrival in Manila and placed on the dock. A security guard of Philippine Scouts was placed on the cargo from the time it was unloaded until it was removed to the security vault of the 5th Medical Depot. The Medical Depot transported

the cargo to the site of the unit when the buildings were ready to receive it. Unloading at the unit was hampered somewhat by lack of machines for lifting heavy packages but was solved by borrowing a crane from a neighboring Engineer outfit.

After unpacking and uncrating was completed it was found that a very small percentage of the equipment was broken or damaged, and none of it was in such bad condition that it could not be repaired and used. The greatest breakage was of cast iron parts and these were welded and the machines made ready for use. No machines vital to construction of limbs were damaged.

Numerous items requisitioned while the unit was being set up in Washington and marked "available in the theater" proved upon requisition in the theater to be either expended or non-available. Opportunity was afforded to put these items on back order, but since there was no assurance that they would be received in from 90 to 120 days, back orders were not used. One particular item that was not available was low-quarter shoes for use on leg prostheses. Of 600 pairs requisitioned through the QM Depot only 27 pairs in suitable sizes for Filipinos were received. It became necessary, therefore, for Captain Keys and Captain Brown to secure shoes from sympathetic and patriotic merchants and citizens of Manila. Another item in this same category was that of leather dress gloves for use on arm prostheses. These were found to be "non-available" but the Director of the YWCA in Manila secured them from surplus U.S. Army supplies and presented them to the arm amputees.

Actual absence of certain items of supply was not so much a problem as the "harassing" effects of devising suitable substitutes or discovering and securing similar items from neighbors on a "borrow" basis.

The first shipment of materials and equipment that had been in short supply arrived in Manila 11 July 1946 aboard the Philips Victory. Part of the shipment was picked up on that date as the ship was unloaded; it was not until 2 August that the remainder of the cargo was unloaded.

The next large consignment arrived in Manila Harbor on 9 August aboard the Gretna Victory. Information as to arrival of this shipment was received on 7 August and since the manifest indicated items critically needed by the unit, steps were taken to secure a berthing priority for this vessel. A number two priority was given the ship, which was not high enough to procure early docking of the Gretna because a number of vessels in the harbor had the same priority. As week after week went by and the supplies became more urgently needed, it was necessary to resort to more strategic means to bring the Gretna

to dock. Delegations to President Roxas, the American Embassy, and Maj. General Christianson, CG, AFWESPAC, produced the desired results and on 28 September 1946 the Gretna Victory was berthed for the express purpose of unloading orthopedic supplies. Cargo in Hatch I was unloaded by working around the clock and then the hatch was sealed and the Gretna Victory was again moved to anchorage in the harbor. Final unloading of this consignment was started on 1 November 1946.

During the first week of November 1946 the Joplin Victory was docked and more items on the "shortage" list were picked up by the unit.

Shipment of the final items of supply (the above-elbow prostheses) was made by air on 24 December 1946.

More than 1,000 different items of expendable and non-expendable equipment and supplies arrived in Manila and with but few exceptions all were found to be of use. Taking duplicate pieces of machinery saved many delays in production by making the unit independent of local supply lines for replacement parts.

Climatic conditions necessitated the modification of drying ovens by the addition of forced ventilation, which was accomplished by attaching an electric blower to a battery of two ovens. Even on rainy days quick drying of molds, casts and buckets was accomplished.

Application of rust-preventive oil to all machinery and tools at regular, short intervals successfully allayed moisture erosion. A well-arranged and orderly supply room facilitated "rust discipline" of stored items. Thorough "bench" inspections on a weekly basis were a standard procedure in the shop. Cleaning up twice daily kept the shops and classrooms presentable at all times.

Items of leather shipped in with the unit and processed in the States were not affected by mildew either before or after being worn by the patients. However, it was necessary to wipe mildew from shoes manufactured in Manila almost daily.

Fig. 75. T/5 Sterling and T/5 Polony, enlisted men in charge of supply.

C.

INSPECTIONS

From the time of arrival of the unit in the Philippines preparations were made for almost daily visits to the site by the officially interested and "just curious." Two briefing meetings were conducted aboard the S.S. Newenham during the week previous to landing in Manila, which stressed the possibilities of frequent scheduled and unscheduled visits from officials of both the Philippine Republic and Army as well as the U.S. Army. Members of the unit were not disappointed. Almost daily, the site was visited by one type or another of these "inspectors."

A definite "tour" was outlined and "guides" were instructed and appointed from among the officers and enlisted men for so-called unofficial visits.

In addition to the inspections regularly scheduled by the Medical Section of the Philippine Base Service Command under the direction of Colonel E. W. Bennett, the following U.S. Army personnel made official visits to the unit:

Colonel Stapleton, Chief Surgeon, AFWESPAC
Lt. Col. Ruby Bryant, Chief Nurse, AFWESPAC, and staff
Colonel Hodson, CO, Philippine Base Service Command
Captain Lura, Director of Physical Therapists, AFPAC
Brig. General James A. Bethea, Chief Surgeon, AFPAC

Many officers and nurses of the U.S. Army Medical Corps were conducted through the unit during its stay in the Philippines. These represented the 360th, 100th, 248th and 13th Station Hospitals, the 4th General Hospital, the 19th Medical Laboratory, and the 5th Medical Depot. A number of officers and enlisted men from units of Ordnance and the Corps of Engineers visited the unit primarily to see the shops.

Official visits paid to the unit by dignitaries of the Philippine Republic included those made by President Manuel Roxas; Maj. General Jalandoni, Chief of Staff, Philippine Army; Colonel Gonzalez Roxas, Surgeon General, Philippine Army; Secretary Villarama of the Department of Public Health and Welfare; and members of the Philippine Congress.

Staffs of the professional services of the Emergency and Orthopedic Hospital, St. Luke's Hospital, and Victoriana Luna General Hospital (PA) were given special lecture tours of the unit in order that they might more thoroughly understand its work.

Complete units of the Philippine Red Cross and the American Red Cross made official tours of the site on separate occasions.

Fig. 76. President Manuel Roxas and staff entering site of unit.

Fig. 77. President Roxas and Capt. Keys leaving occupational therapy building. ⟶

Fig. 78. Left to right: Secretary Villarama, Department of Public Health and Welfare; Col. Gonzalez Roxas, Chief Surgeon, Philippine Army; Capt. Brown, Chief Surgeon, 9940 TSU-SGO; President Manuel Roxas; Capt. Keys.

Fig. 79. Front row, left to right: Capt. Brown, Sec. Villarama, and Capt. Keys, with Physiotherapy Building in background.

Fig. 80. Members of Philippine Congress on inspection tour of limb shop.

Representatives of civic organizations and many interested civilians were almost daily visitors to the area.

The American Embassy, represented by Commander Eisenstein, inspected the area at the time of President Roxas' visit.

In almost every instance visitors were impressed by the size and compactness of the unit and were amazed at the facility with which the patients used their prostheses. Innumerable favorable comments were made about the arrangement and organization of the equipment, supplies and instruction.

The Filipino visitors were quite concerned about the length of stay of the unit in the Philippines. When informed that the equipment and supplies would remain permanently and that personnel were being adequately prepared to use them, these people expressed their deep gratitude and good fortune vociferously.

D.

TRANSFER OF 9940 TSU-SGO TO THE PHILIPPINE REPUBLIC

Proceedings necessary for the transfer of property of the 9940 TSU-SGO began immediately after a date was set for the Philippine Army personnel to take over on a "trial" basis..

On 18 September 1946 a complete inventory of non-expendable items was submitted, through channels, to the Foreign Liquidation Committee, and on 2 October 1946 a complete inventory of expendable items was submitted to that organization. Both inventories represented a physical count of all items listed. There were 438 non-expendable items and 607 expendable items for a total of 1,045. OFLC set values as follows:

438 non-expendable items	$82,823.02
607 expendable items	152,202.15
Total	235,025.17

On 25 October 1946 the transaction for the sale of equipment and supplies was completed. There was no delivery of items involved since they were all at the site of the unit. Separate arrangements were made for transfer of buildings and fixtures. Generators (two) were not included in the transfer, but an agreement was reached whereby the Philippine Army could use them until such time as the generators could be replaced by PA stocks. Motor vehicles were not transferred to the PA but were returned to the issuing agency.

As stated previously in this report, personnel of the Philippine Army Medical Corps assumed complete charge of the operation of the unit on 1 October 1946. From that date until 9 November 1946, when Captain Keys reported to Paranaque Replacement and Disposition Center, the Philippine Army personnel were in charge.

At a conference called by President Manuel Roxas and attended by the President; Colonel Gonzalez Roxas, Chief Surgeon (PA); Captain I. M. Gomez, Chief of Orthopedic Shop (PA); and Captains Keys and Brown, USA; it was decided that the unit could best be operated and maintained by members of the Medical Corps, PA, under direct supervision of the Office of the Chief Surgeon, PA. It was also recommended at this conference that a separate table of organization and allowances be instituted to take into consideration the specific needs of such an organization. Provisions for the use of the unit on a cost basis by civilian amputees who could afford to pay were discussed, and Colonel Roxas was instructed to make these arrangements.

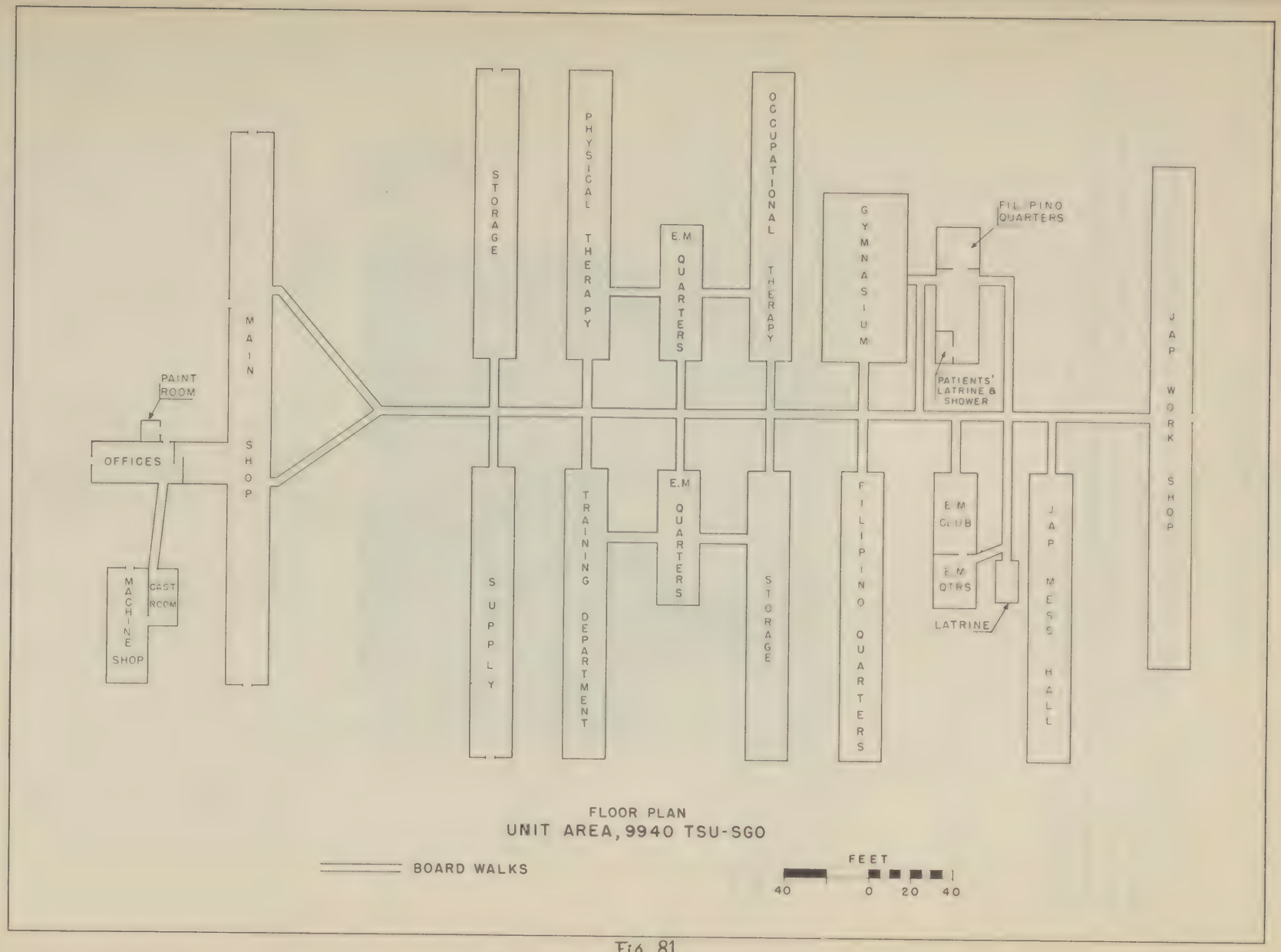

STORAGE
PHYSICAL THERAPY
E.M QUARTERS
OCCUPATIONAL THERAPY
GYMNASIUM
FIL PINO QUARTERS
JAP WORK SHOP
PATIENTS' LATRINE & SHOWER
MAIN SHOP
PAINT ROOM
OFFICES
MACHINE SHOP
CAST ROOM
SUPPLY
TRAINING DEPARTMENT
E.M QUARTERS
STORAGE
FILIPINO QUARTERS
E.M CLUB
E.M QTRS
LATRINE
JAP MESS HALL
FLOOR PLAN
UNIT AREA, 9940 TSU-SGO
BOARD WALKS
FEET
40 0 20 40

Fig. 81

PART VII
AWARDS AND COMMENDATIONS

During the course of its tour of duty in the Philippines, the 9940 TSU-SGO received innumerable compliments upon its work from the hundreds of visitors conducted through its shops and classrooms. Transcribed herein are the commendations and awards presented to the Unit from official sources in the Philippines.

Fig. 82. Captain Keys and Captain Brown, who were awarded the Military Merit Medal, Philippine Army.

1. Communication from Federico Mangahas, Private Secretary to President Roxas:

MALACANAN PALACE
MANILA

September 7, 1946

Gentlemen:

The President was most pleased to get your letter of August 31st, and directs me to acknowledge his appreciation of what you have done for the disabled veterans of the First General Hospital. He says to assure you that your solicitude for their welfare will go a long way towards helping our government and people to do justly by these men who have so gallantly served their country.

Sincerely yours,

s/ Federico Mangahas
FEDERICO MANGAHAS
Private Secretary

Capts. Edward S. Brown, MC
and John J. Keys, CAC
Hdqrs. Amputation and Prosthetic Team
APO 358

2. Commendation of Services from R. Jalandoni, Major General, Chief of Staff, Army of the Philippines.

HEADQUARTERS ARMY OF THE PHILIPPINES
CAMP MURPHY, QUEZON CITY

9 October 1946

SUBJECT: Commendation of Services

TO : Officers and Staff, 9940th, TSU, SGO
Amputation and Prosthetic Team,
Victoriano Luna General Hospital,
Pasig Boulevard, Mandaluyong, Rizal

1. For the past six months you have all labored with indefatigable zeal, great interest, and admirable skill to provide our veterans who have suffered the loss of one or more limbs in this recent war against the common enemy, with much-needed artificial prosthetic devices that will help restore them as useful individuals in the communities where they live. Considering the fact that your detail to the Philippines was on a voluntary basis, motivated by a sincere desire to aid in the rehabilitation of disabled Philippine Army veterans who fought with you under the American flag, your services become the more humanitarian and worthy of commendation.

2. Capt. John J. Keys, CAC and Capt. Edward S. Brown, MC the principal members of your team, with great human understanding and whole-hearted interest in the plight of our amputees, have gone beyond the normal performance of their duties by making personal appeals to influential businessmen and civic spirited organizations, who donated much needed made-to-order gloves and shoes specially needed by these unfortunate veterans. Similarly, their efforts to acquaint the community about the capabilities of these rehabilitated veterans and the need for giving them preferential employment are deserving of highest praise and gratitude of our people.

3. Cognizant of the great benefits that have accrued and will accrue to the Philippine Army in particular and to the Government of the Philippine Republic in general as a result of the establishment of the Amputation and Orthopedic Brace and Limb Shop by your team in the Victoriano Luna General Hospital (PA), I hereby commend you all for the highly meritorious services you have performed.

4. I have recommended to His Excellency, the President of the Philippines that appropriate decorations be awarded to Capts. John J. Keys and Edward S. Brown for their highly commendable services and I have been assured that these will be awarded in due time.

s/ R. Jalandoni
R. JALANDONI
Major General
Chief of Staff

3. Communication to General Norman T. Kirk from J. Gonzalez Roxas, Colonel, M.C., The Chief Surgeon, Army of the Philippines.

HEADQUARTERS ARMY OF THE PHILIPPINES
OFFICE OF THE CHIEF SURGEON
Camp Murphy, Quezon City
Philippines

11 October 1946

Major General Norman T. Kirk
Surgeon-General, U. S. Army
Washington, D. C.

Dear General Kirk,

Reference tour of duty of 9940th, TSU, SGO, Amputation and Prosthetic Team with the Philippine Army, I am most happy to inform your office of the invaluable services rendered to the Philippine Army veterans who lost one or more limbs during the war. In this connection I would like to express our gratitude for the noble step taken by your office in sending this team to the Philippines for and in behalf of Philippine Army amputees who fought side by side with your army during the most critical period of the war. We are aware of the tremendous expenses incurred incident to this overseas detail not to mention the cost of equipment and supplies of the Orthopedic Shop. This, we feel, is another eloquent expression of the sincere desire of the American people to do everything for the people of the Philippines.

Under arrangement initiated by your office the Philippine Army will be the recipient of equipment and supplies of the Shop amounting to approximately one half million dollars. This gives us an opportunity to continue the services that from time to time will be needed by our disabled veterans. It may be that in the future the service of the shop will be extended to the civilian amputees for lack of private and other government facilities.

I wish to comment with more detail the work done by the Orthopedic Team headed by Captains John J. Keys and Edward S. Brown during the brief period of 6 months. All of them without exception adapted themselves to local conditions and associated with us in the most pleasant and cooperative relation possible. In this connection I would like to cite the creditable task undertaken specifically by Captains Brown and Keys. Because of their professional skill, expert judgement and deep abiding interest in the welfare

of the cases entrusted to them, the speedy rehabilitation of amputees has been greatly facilitated. In furtherance of this noble mission, they labored beyond their normal duties by making personal appeals to influential business organizations and civic spirited citizens for financial assistance and employment of amputees. They made active and vigorous representations to the local rotary club that those reconditioned amputees are just as capable and efficient as normal individuals and that they deserve preferential employment. Their diligence, expert guidance and readiness to share their knowledge to others have greatly contributed in furthering the training of Philippine Army personnel who will take over the functions of the shop for the Philippine Government.

In closing may I reiterate my observation that the services of the 9940th, TSU, especially those of Capts. Brown and Keys have been very commendable and highly exceptional. May I request that rating of superior be made of record for above named officers and excellent for the other members of the unit covering the period of six months from 11 May 1946 to 10 October 1946.

With the assurance of our continued appreciation, I remain

Yours respectfully,

/s/ J. Gonzalez Roxas
/t/ J. GONZALEZ ROXAS
Colonel, MC
The Chief Surgeon

4. Award of the Military Merit Medal.

R E S T R I C T E D

HEADQUARTERS ARMY OF THE PHILIPPINES
Camp Murphy, Quezon City

PAXO 300.4 18 October 1946

GENERAL ORDERS
NUMBER 584

AWARD OF THE MILITARY MERIT MEDAL

By direction of the President, under the provisions of Circular 86, this Headquarters, dated 22 July 1946, the Military Merit Medal is hereby awarded to the following-named officers:

Captain EDWARD S. BROWN, 01705297, MC, AUS
Captain JOHN J. KEYS, 0248647, CAC, AUS

For highly meritorious and humanitarian services rendered to Philippine Army amputees as Chief Surgeon of the U. S. Army Orthopedic Brace and Limb Shop and Commanding Officer of the 9940th Technical Service Unit, SGO U. S. Army, respectively, at the Victoriano Luna General Hospital, Philippine Army, Mandaluyong, Rizal, during the period from 11 May to 1 October 1946. At a great financial sacrifice, they volunteered to come to the Philippines and operate an artificial limb shop which is of vital importance in the rehabilitation and reconditioning of Philippine Army Veterans who have suffered the loss of one or more limbs in this war for the preser vation of the democratic way of life. Due to their professional skill, expert judgment and knowledge of the mechanism of artificial limb prostheses and their deep abiding interest in the welfare of the cases entrusted to them, the speedy rehabilitation of amputees was greatly facilitated. I furtherance of their noble mission, they labored beyond the performance of their normal duties by making personal appeals to influential business organizations and civic-spirited citizens for financial assistance in the purchase of made-to-order footwear and gloves especially required by amputees. With great human understanding, they made active representations t the local Rotary Club that these reconditioned amputees are as capable an

efficient as normal individuals and that they deserve to be given preferential employment. Likewise, their diligence, expert guidance, and readiness to share their knowledge to others have greatly contributed in furthering the training of Philippine Army medical personnel which will take over the functions of the orthopedic shop for the Philippine Government.
ADDRESS: Captain E. S. BROWN - 3319 Daleford, Clev. Ohio.
Captain J. J. Keys - 540 Jones St. Sn Francisco, California

BY ORDER OF THE SECRETARY OF NATIONAL DEFENSE:

OFFICIAL:

s/Luis Florentin
LUIS FLORENTIN
Colonel, AGS
The Adjutant General

R. JALANDONI
Major General, PA
Chief of Staff

DISTRIBUTION
"A" "L" "S" "X"

R E S T R I C T E D

PART VIII
PUBLICITY

In order that the Philippine veterans could be made aware of the fact that an amputation and prosthesis unit was available for their benefit it was necessary to publicize the 9940th TSU-SGO through the press and radio. An extensive campaign was conducted by radio stations in the Philippine Islands for a month prior to the unit's arrival in Manila and for a month after its arrival. This, together with newspaper and magazine articles and mimeographed circulars mailed by the Philippine Army Headquarters, was largely responsible for getting discharged veterans back to the hospitals. The texts of a number of press releases are herein transcribed.

1. The following article appeared in a War Department Bureau of Public Relations Press Branch release as of 21 March 1946. It appeared in several newspapers and in The Bulletin of the U.S. Army Medical Department of May 1946:

> Plans for the establishment of an artificial limb shop to fill the needs of the U.S. Army's Filipino amputees will get under way on April 15, 1946, when an orthopedic team of four officers, 16 enlisted personnel, and two civilians will leave for the Philippines to set up the installation, the War Department announced today.
>
> The first Army establishment of this type to be organized in the Philippines, the limb shop will provide facilities for training Filipino personnel in the manufacture of artificial limbs, in addition to supplying amputees' requirements. When the Filipinos are considered sufficiently skilled, the shop will be turned over to them for operation.
>
> Captain John J. Keys, former Chief of the Orthopedic Limb Shop at McCloskey General Hospital, Temple, Texas, will head the team, assisted by First Lieutenant Edward S. Brown, Bushnell General Hospital; First Lieutenant Carol Stange, physiotherapist from McGuire General Hospital; and First Lieutenant Roger S. Noden, amputee from England General Hospital. The 15 enlisted men and one enlisted WAC were selected from a number of General Hospitals, including McGuire, England, McCloskey, Percy Jones, Bushnell, Lawson, and Walter Reed. Welch Convalescent Hospital and England General Hospital provided the two civilian occupational therapists.

The new artificial limb center will be located at Manaluyong, about five and one-half miles from the heart of Manila. The two-fold purpose of establishing an organized artificial limb shop and instructing the Filipinos in the technique of limb construction will be accomplished in approximately six months, Captain Keys said.

2. The Philippines Free Press, a weekly magazine, published the following article in its issue of 17 August 1946:

THEY WALK AGAIN

He was very young—not yet 14. But it was something that had to be done, so he told himself to have courage, not to be a child—and went out and blew up a Jap ammunition dump. As he ran away the Japanese turned a machine-gun on him. His companions carried him bleeding to a barrio where the stump, where his leg was, slowly healed.

It was a fine thing he had done, at not quite 14 he had shown himself a man of rare courage, but the deed was done, the moment was over—and now for the rest of his life he must stumble and fall, going as he must without a leg. And he had many years to go.

That was three years ago. Now he can walk as well as the next man, no limp is noticeable, and he may take his place as a useful, unhandicapped member of society. He has a new leg—as good as science, human patience and skill can make it. And so have many others like him. And so will a thousand more, veterans of Bataan, Corregidor, the Resistance and Liberation.

This miracle came to pass, was made possible through the generosity of the American government and the service—without thought of self—of an American volunteer team.

Last April an orthopedic team of four officers, 16 enlisted men, and two civilians left the United States for the Philippines to set up an artificial limb shop here. They were to stay six months, then turn over the shop and work to Philippine Army officers and men.

Head of the team is soft-speaking Capt. Edward S. Brown, who handles the amputees with gruff gentleness; they must think nothing of their condition. He is the chief surgeon

in charge of all surgery and reconditioning of amputees. The chief of the prosthetic limb shop is self-effacing Capt. John J. Keys, formerly chief of physical reconditioning and the orthopedic limb shop at McCloskey General Hospital in Texas. The walking instructor is Lt. Roger H. Noden, who himself lost a leg in battle while crossing the Rhine in 1945. Lt. Carol Stange is the chief physical therapist. The two civilian assistants are Mary K. Bertling, from the Walter Reed General Hospital, and Elizabeth M. Nachod, from the Thomas M. England General Hospital in Atlantic City, New Jersey.

The team brought a million dollars' worth of equipment and set up a machine shop to manufacture artificial limbs. In the shop are precision tool lathes costing $15,000. The artificial limb center is located at Mandaluyong at the Philippine Army First General Hospital.

When a veteran applies for an artificial limb, he is checked by a doctor to make sure that his stump can be fitted with one. If an operation is required to form the stump, it is performed, then the amputee undergoes physiotherapy. The leg or arm is conditioned by exercises and bandaging. When it is ready for fitting the necessary measurements are made. Then the new limb is fitted and the patient is taught how to recover his balance and walk. He learns to go up and down stairs and play games. He is taught various occupations so that he may re-enter society as a normal citizen and feel that there is no strike called against him.

And this he does. It is a wonderful thing to see leg amputees walk about with confidence, or an arm amputee lift a bag which weighs 75 pounds. Once again these men are assets to society, not liabilities. They can take care of themselves—and of others, their families and loved ones. It is truly one of the great achievements of science and man—to make the legless walk and the armless carry, and to feel that there is no grave difference between them and other men.

But the artificial limb center, like any other human institution, needs money to be able to carry on its work. There are many in need of new limb for lost—and the funds are almost gone. The American government has done its part—it is up to the Filipinos—to the wealthy and the able, if

the government cannot put up the money—to contribute so that those who had served their country so well, may not be handicapped all their lives thereby.

A young man who had lost an arm was discharged from the center two weeks ago, with a mechanical hand. He is taking the law examinations—and will write the answers with a pen held securely by his new hand. He is quite proud of it, and the men who made it possible. But the center needs money, and that money must come from—you.

3. The Manila Times of Tuesday, 27 August 1946, carried this item:

PI TO GET GIFT OF HOSPITAL UNIT

Maj. Gen. J. G. Christiansen, commanding officer of the AFWESPAC, has informed President Roxas through the U.S. Ambassador, that the entire equipment installed some time ago at the 1st General Hospital in Mandaluyong for the manufacture of artificial limbs for amputees, and for their training in the use of such aids, will be turned over to the Philippine Army on or about October 15.

Gen. Christiansen informed the President that by October 15, the training program will have been sufficiently advanced to permit the PA to take over the entire program. On that date the Foreign Liquidation Commission will earmark the equipment for the Republic's army.

President Roxas expressed his thanks for the transfer, which was previously requested by the Philippine government.

4. Accounts of this meeting were given as follows in the editions of 30 August of three newspapers:

The Evening News

AMPUTEES SHOWN TO ROTARIANS

Manila Rotarians, at their luncheon meeting at the Manila hotel yesterday, received the report on the rehabilitation work done for veteran amputees at the 1st General Hospital at Mandaluyong. The report stressed the need for immediate aid for the disabled veterans.

Capt. Edward S. Brown and Capt. John J. Keys, both of the hospital, gave the rotarians a practical demonstration of what is now being done at the hospital.

Four veterans who had lost their limbs were brought into the room and were asked to undress and reveal how artificial limbs have been fitted to them.

Only 200 amputees have been attended to, according to the speakers, and there are an estimated 2,000 Filipinos who lost limbs in the war.

The amputees who were brought to the rotary room for the demonstration were Salvador Pineda, Augusto de los Reyes and Tomas Rosales, who each lost a leg, and Rafael de la Peña, who lost an arm. All of them had artificial limbs.

The Manila Chronicle

An appeal to members of Manila Rotary Club to help amputees by giving them employment in their offices or homes, was made yesterday noon by two officers of the U.S. Army who are in charge of the artificial-limbs or orthopedic institution in the First General Hospital of the Philippine Army in Mandaluyong.

The two officers, Captain Edward S. Brown, M.C., and Captain John J. Keys, engineer, were the guest speakers of the Manila Rotary Club yesterday at their weekly luncheon-meeting in the Manila Hotel.

Four amputees, whose artificial limbs were shown to the Rotarians, were also the guests of the club yesterday. Three of them lost their limbs in Bataan; the fourth, in Mountain Province.

Captain Brown asked the Rotarians to employ the amputees because they are just as good as normal men, if not better. Perhaps they are better, he said, because they realize that they have to make good or else they would be replaced. Amputees who are discharged from the institution learn trades, such as carving, weaving, belt-making, etc.

Samples of the amputees' work were also passed around, among them the wooden soles of a pair of bakyas, carved out by an amputee; a fine piece of cloth woven by an amputee,

and belts, bracelets, and other articles made by amputees.

The orthopedic institution in Mandaluyong is the only institution of its kind in the world, according to Captain Brown. So far, only 200 amputees have been taken care of, although there are an estimated 2,000 soldiers who lost their hands or their legs in the last war.

The four amputees who were present at the luncheon were Augusto Reyes, Salvador Pineda, Tomas Rosales, and Rafael de la Pena. After a good luncheon, they walked about in the Rotary room, showing their artificial limbs. Each represented a type of amputation and its corresponding artificial limbs: below the knee, above the knee, right after the knee, and below the elbow. The fellow with an amputation below the elbow has a "hook" for a hand, and with it he demonstrated that he could strike a match.

Captain Keys is the former chief of the artificial limb shop, McCloskey General Hospital, Texas, and is now in charge of the 9940th technical service unit. He was detailed in the Surgeon General's office, Washington, D.C., and was sent out here to help establish the orthopedic institution in the Philippines. Captain Brown, a graduate of the school of medicine, Yale University, was formerly assistant chief of the amputation service in Bushnell General Hospital, Brigham, Utah, and was also assigned to the Surgeon General's office in Washington, D.C. He is today in charge of surgery and reconditioning of amputees in the Philippines.

The speakers described how the institution provides artificial limbs. The process takes some time, they pointed out, emphasizing that a discharged amputee may have to return to the institution periodically for repairs or readjustments.

The Rotarians were told that the amputees were well taken care of before July 4, 1946 but now they get only P.30 a day for meals. Captain Brown also disclosed that by October 15, 1946, the orthopedic institution staff will leave the Philippines and it will be entirely the responsibility of the Philippine government. A Filipino staff is now being trained to continue the work.

The 2,000 amputees in the Philippines is rather small compared with the number of amputees in other parts of the world. In the U.S., there are 17,000 amputees; in England, 45,000; in China, 90,000; and Russia, 125,000.

The Manila Bulletin

Members of the Manila Rotary Club saw a practical demonstration at the Manila Hotel Thursday of the rehabilitation work that is being done with Filipino war veterans who have lost arms or legs through amputation. Four Philippine Army men, three of whom fought on Bataan, removed their outer clothing and paraded before Rotarians to show what can be done with modern artificial limbs.

Two American army officers working with the rehabilitation unit at the First General Hospital, Mandaluyong, explained the work and conducted the demonstration. Capt. Edward S. Brown, chief surgeon of the Philippine Amputation Unit, assigned to temporary duty with the Philippine Army by the surgeon general's office in Washington; and Capt. John J. Keyes, who is in charge of the shops where artificial limbs are made, brought with them to the Philippines equipment worth more than $1,000,000 which eventually will be turned over to the Philippines to continue the work.

"There are about 2,000 Filipino amputees eligible for treatment," Capt. Brown explained, "but they are scattered and we haven't been able to reach them all. We have had only about 200 cases under treatment so far."

They are trying to reach the rest through Philippine army connections. They will be brought to Manila free of charge, hospitalized here, given an artificial limb worth in the neighborhood of $400. Captain Brown was particularly interested in impressing Rotarians with the full restoration of veterans who have lost legs and arms.

"They are just as well equipped to take their place in society," he said. "If any of you can employ one or more of these men you will find them able to do almost any kind of work, and because they are anxious to prove themselves despite their handicaps, they are perhaps more willing and able workers than the average."

5. The Manila Bulletin, 13 September 1946, published the following:

AMPUTEES WILL BE MOVED TO MANILA

Mrs. Trinidad Roxas last week authorized the issuance of P1,000 to Col. J. Gonzalez Roxas, chief surgeon of the Victoriano Luna General Hospital (1st General Hospital) in

order to facilitate the transfer of amputees from the provinces to the hospital in Mandaluyong where they can be fitted with artificial limbs. This will enable them to avail of the services of the American experts who will leave by the end of the month.

The gift is in response to a request made by the hospital in behalf of the amputees who have been recommended to the Victoriano Luna Hospital by Red Cross provincial chapters with which the hospital is working in the project to give relief to disabled veterans. The sum donated is taken from the funds already collected for the relief war veterans, widows and orphans.

6. The Manila Bulletin, 14 September 1946, had the following articles:

ARTIFICIAL LIMBS LANGUISH IN BAY AS AMPUTEES WAIT

Amputees at the 1st general hospital in Mandaluyong who have waited so long for their artificial limbs are due for more disappointment. The s.s. Gretna Victory which has on board 237 cases of artificial parts for amputees has been relegated to No. 2 priority, and may not be allowed to dock for unloading until next month. John Keys of Technical Service Unit, Surgeon General's Office, expressed fear that due to the delay his unit may not be around to receive and install the artificial limbs on the amputees as they may be sent home soon.

The Philippine Republic will take over the maintenance of the hospital of the amputees when Capt. Keys' unit is sent home.

MRS. ROXAS IN PLEA FOR VETS

An appeal for public support of the national campaign to raise funds for the relief of sick disabled veterans, war widows and orphans was made last night by Mrs. Trinidad de Leon Roxas in a broadcast speech over station KZRH.

"Because of this emergency, and because there is no other source of assistance immediately available, we are calling upon every person of goodwill to help in this crusade," the First Lady said. "There should be no limit to the willingness of everyone to contribute, to ask others

to contribute, and to work. It is a small enough payment to make for their sacrifices. It is a small enough recognition of the blessing we enjoy, and that were made possible by their sacrifices."

Mrs. Roxas spoke of the debt of gratitude the nation owes to these heroes of the past war, "the men who brought us peace, who rescued us from bondage."

Following the speech of the First Lady, six disabled veterans were interviewed on their present problems. The veterans were Lieut. Justo Condes, Lieut. Martin Navarro, Cpl. Cesar Quebral, Santiago Boridor, Segundo Abutin, and Edilberto Rosel.

7. These articles appeared in the 27 September 1946 issues of two newspapers:

Manila Times

SPEED UNLOADING OF APPLIANCES FOR STRICKEN VETS

The commanding general of AFWESPAC, acting on representations made by the local American legion and a delegation of Filipino veterans through the American embassy, has ordered the unloading of the army transport Gretna Victory within this week to make available a consignment of 250 cases of artificial limbs for Philippine veterans, it was learned yesterday.

A delegation of disabled veterans called at the embassy this week to explain that the limbs intended for them have been on board the transport for some weeks but that they could not be unloaded due to priority given to other cargo piled on top of cases.

The embassy announcement said: "Informal representations made by the embassy to AFWESPAC disclosed that the prosthetic limbs were at the bottom of the ship's hold and hence could not be unloaded in the stream. The rest of the ship's cargo is low priority material, while other army transports have food, construction materials, and other essential supplies for the forces here, including Philippine Scouts and Philippine Army forces. General Christiansen decided, however, that the plight of the Philippine veterans required emergency action and has directed that the Gretna Victory be unloaded far ahead of its own turn so that the prosthetic

limbs can be sent out to the 1st General Hospital and fitted by the U.S. Army prosthetic team which is now working with the disabled Philippine veterans.

"The American Embassy expressed its appreciation of the prompt action by AFWESPAC, in recognition of the plight of the Philippine veterans."

Manila Bulletin

AFWESPAC ORDERS UNLOADING OF ARTIFICIAL LIMBS FROM ARMY SHIP

The commanding general, AFWESPAC, has directed that the U. S. Army transport ss. Gretna Victory be unloaded at the earliest feasible date—possibly within a week—in order to make available a consignment of artificial limbs for disabled Philippine veterans, AFWESPAC told the American Embassy yesterday.

A delegation of disabled veterans called at the American Embassy this week and were received by the spokesman for Ambassador Paul V. McNutt, who was out of town. The veterans explained that the limbs intended for them have been on board the Army Transport for some weeks but the ship has been unable to unload its cargo due to priority given to other cargo.

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(Remainder of article is same as that quoted above.)

8. The Sunday Post Magazine of Manila published this article on 6 October 1946:

LIMBS REPAIR SHOP

It took no less than miracles to make the lame and infirm walk during the Biblical days. Today, thanks to modern science, the limbless walk again without the need for invoking the divine powers. Veterans who lost their limbs in the last war find succor and "normality" with the aid of an unusual shop for human repairs.

The Orthopedic and Prosthetic Team, an artificial limb shop and center, was set up by an orthopedic volunteer team dispatched by the U.S. government to the Philippines, to fill the needs of Filipino amputees. This is the first army establishment of its type to be organized in the Philippines. The function of this unit is to fabricate artificial limbs for Filipino veteran amputees, and to train and rehabilitate them. The shop, at the present time, is located in the 312th General Hospital Area, adjacent to the 1st Philippine General Hospital, Mandaluyong, which is 5½ kms. from the center of Manila.

The Orthopedic team is composed of specialists in their respective lines. Capt. John J. Keys, former Chief of the Orthopedic Limb Shop at McCloskey General Hospital, is head of the team; Capt. Edward S. Brown, from Bushnell General Hospital, is the Chief Surgeon of the Amputation Unit; 1st Lt. Roger H. Noden (an amputee), from Thomas M. England General Hospital, is Walking Instructor; 1st Lt. Carol Stange, Physiotherapist from McGuire General Hospital, is the Chief Physical Therapist; 1st Lt. Lilian Emrick, Asst. Chief Physiotherapist; Miss Mary Berteling, Occupational Therapist; Miss Elizabeth Nachod, Occupational Therapist; and sixteen Enlisted Men, Limb Technicians.

The Shops in which the artificial limbs are manufactured is the most complete and mechanically equipped shop in the Philippines. Of the many machines within the shop some of the precision tool lathes cost P30,000.

The total equipment of the shops cost the American government over a million dollars for the instruments which are necessary to make artificial arms and legs. The limbs call for such fine measurements as a ten-thousandth part of an inch. The supplies for the shops are in such quantity that there is a full year's stock of each item used in the manufacture of artificial limbs.

Each amputee is individually measured for his artificial limb. No two amputees are alike in the size and form of their limbs. Thus, only highly skilled mechanics who have been trained in this work have the "know-how" to measure and fit properly each individual case. All of the sixteen limb technicians from the U.S. Army have worked and studied artificial limb making in the major amputation centers

of the United States for over a year. Each limb technician was tested for his mechanical abilities by the Army before he was sent to a limb technician school.

The Orthopedic & Prosthetic Team started operations on 11 May 1946. On 11 June 1946 it had its first leg completed. The Unit is now doing considerable progress with a significant increase of its patients. When the Orthopedic team arrived in Manila on 11 May 1946, there were 32 amputees waiting to be fitted with prostheses at the 1st Philippine General Hospital and 8 at the 155th Station Hospital.

At present 163 amputees are being treated by the Orthopedic team. About one half that number have been fitted with prostheses. More amputees are expected to be brought in from the province and other outlying islands. The patients are housed at the 1st Philippine General Hospital, Philippine Army.

The great need for continuing this service is evident as there are about 2000 amputees in the entire Philippine archipelago. The service may eventually be extended to civilians who by accidents or other causes have been unfortunate enough to lose limbs.

There are four medical officers, four nurses, sixteen enlisted men of the Philippine Army and two civilians undergoing training in the unit at present. The shop, machinery and the work are to be turned over to the Philippine government when the American personnel completes its tour of duty in November.

The lack of influx of patients applying for prostheses in spite of wide publicity given this unit is attributed, according to the Chief Surgeon, PA, to the following: inaccessibility of the residence of these amputees to means of communications; fear of amputees of leaving their families behind without adequate financial support; and the inadequate provisions for their transportation.

The importance of this institution is now being realized by the people. The shop has been visited by top U.S. Army officers, high government officials, doctors and nurses from various hospitals, associations of charity, newspapermen and prominent persons. The magnificent work being done by this team and the unconditional service it is rendering to dis-

abled Filipino soldiers is truly commendable. Miracles of modern science take place as amputees walk normally and perform their daily tasks like healthy men. An American officer tells of a baseball player in America who lost a leg in action. He has now resumed playing baseball with his artificial leg.

An amputee applying for prosthesis is first checked by the Chief Surgeon, Capt. Edward S. Brown, to make sure that the stump can be fitted with an artificial limb. If the stump is poor a surgical revision is performed, before he can be fitted with a prosthesis. Then the patient undergoes physiotherapy, that is, if he is a leg amputee. In the Physical Therapy Department, physiotherapists prepare the leg stumps of the patients for prostheses through exercise and bandaging. The leg amputee is taught to walk after he has been fitted with a prosthesis.

After a portion of an extremity has been amputated there is a tendency on the part of the patient to protect the stump and to refrain from using the part. In order for a patient to learn to walk well the remaining portion of the extremity must be strong. The exercises given to the amputee before he is fitted with a prosthesis help him to walk well.

When the patient is fitted with a prosthesis he is taught to walk properly, walk up and down stairs, go up and down curbs, walk up and down ramps, sit in a chair and rise from it, sit on the floor and get up from it, and even to dance with music. Each patient reports for exercise and bandaging twice daily. Each patient in the walking classes reports for "walking" twice daily.

The Occupational Therapy Department is training the arm amputees in the use of their artificial arms while learning various occupations. As soon as a patient is fitted with his prosthesis he is usually started at playing checkers, with men of different sizes and shapes. This gives him practice in using his hook and as he gets interested in the game he loses his self-consciousness.

The patient then starts practising every-day tasks such as using a knife and fork, tying his shoes and his necktie, buttoning his shirt,—all the things normal individuals do. The patients also do a certain amount of craftsmanship such as leather work, metal work, woodwork and weaving, to get

practice in using their prosthesis. All arm amputees have to be cleared by the Occupational Therapy Department as knowing how to use their prostheses successfully, before they are discharged by the unit.

There are about 50 arm amputees now being treated in the occupational therapy department. Six have already been discharged.

Thru the medium of sports, amputees are given additional exercise and also an opportunity to adjust their artificial limbs to more vigorous physical activities. The spacious old surgery building of the unit was converted into a gymnasium where patients play badminton, ping-pong, shuffleboard, and hit the punching bag as well as boxing; outdoors, modified horseshoe, croquet, volleyball and basketball courts were set up.

Patients especially seem to enjoy volleyball in which one-legged patients would play against the one-armed. Although they usually sit and rest after each point, the one-legged easily defeats the one-armed. While playing, the patient often forgets his artificial leg and runs after an elusive ping-pong ball, leans over and picks it up. All games help them regain coordination, balance and a certain amount of confidence.

When a patient has received his new artificial limb, undergone intensive physiotherapy, muscle training exercises and instructions in the proper use of the artificial limb, he has completed his pre- and post-prosthetic training. He is discharged to occupy his former place as a useful member of society.

PART IX.
RECOMMENDATIONS

The experiences of the 9940 TSU-SGO during its recent tour of duty in the Philippine Islands prompt the following recommendations:

1. That treatment for the amputee be conducted in a closely knit organization. The physical plant should be as closely grouped as terrain will permit, thus facilitating frequent inter-association of personnel, contacts, and ideas.

2. That the equipment and supplies, including means of transportation, of any future similar commissions all be assembled and proceed with the personnel of the unit. Provision should be made to take care of additional demands upon supply lines in the theater caused by special groups assigned for temporary duty.

3. That an intensive survey be conducted among commercial limb fitters to determine optimum practices and techniques used in fitting prostheses.

4. That the results of such a survey be incorporated into the instruction of Army limb technicians.

5. That "best" techniques now in use be disseminated throughout the limb shops in Army General Hospitals in order that the transfer of patients or of technicians will not entail undue waste of time and materials. That the possibilities of standardization of techniques be investigated.

6. That a smaller thigh corset be tried for American below-knee amputees and that the pelvic belt be eliminated in selected cases.

7. That definite mental preparation be included in the treatment of amputees in order that a patient's attitude will be to "help himself."

8. That both still and moving pictures be utilized in determining the proper fit and function of the prostheses.

9. That motion pictures be utilized in training amputees to use their prostheses.

10. That provision be made for allotment of money to be used in purchasing goods or services locally.

FOR THE 9940 TSU-SGO:

John J. Keys

JOHN J. KEYS
Captain, CAC

REPORT OF 9940 TSU-SGO

PHILIPPINE AMPUTATION AND PROSTHETIC UNIT

OFFICE OF THE SURGEON GENERAL

UNITED STATES ARMY